



**ORIGINAL RESEARCH PAPER**

**Agricultural Science**

**A FUZZY ANALYSIS OF CAUSES AND CONSEQUENCES OF FARMER'S SUICIDE IN SELECTED TALUKAS OF YEOTMAL DISTRICT**

**KEY WORDS:** Fuzzy sets, Social Survey, correlation matrix

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**ABSTRACT**

This paper aims at analyzing two major issues, namely causes and consequence of farmer's suicide in selected talukas of Yeotmal district. The analysis should help planners and social organizations to arrive at Strategies to overcome the deadly menace. Survey data has been used to illustrate how fuzzification can help in formulating problems when many aspects do not fall under the traditional two-valued logical domain. The study is based on the both primary data generated from a survey, of 26 selected farmers, and secondary data, obtained from various revenue departments. Top five factors, which lead to maximum stress, were identified by a simple mechanism of summing up the scores separately for affected and non-affected families, and then finding their differences. The factors where differences were maximum, showing that the affected has a extreme view on these, were considered at the top. Findings indicated Crop failure, and psychological factors where the top two. Alcoholism, indebt ness and non availability of power supply were the next in order. Fuzzyfication was used to define three fuzzy sets G(x), M(x) and L(x)

**INTRODUCTION:**

Increasing trend of commitment of suicides, by farmers has been a matter of great concern of the Governement [] for many years now. Identification of the factors which cause or lead to increasing suicidal tendencies has to be the first step in any attempt to find remedial solutions. The tendency has been prominent in small and marginal farmers. The purpose of the study, hence , was to examine

- (1) The basic factors leading to distress, ultimately driving them to commit suicide.
- (2) The pressing business and professional demands, which they are not able to meet and hence get pushed into debt trap.
- (3) Possible role of institutional support, which can ease the situation.

**Location of study:** The total geographical area of the district is 13,584 Sq. Km, which is 4.40 per cent of the total area of the state. The district is divided into 16 Tahasis (Blocks). The district head quarter

is at Yavatmal. The district comprises of 8 Municipal cities and 1205 Gram Panchayats, working for the Rural Development of the district. The total number of village in the district are 2131 out of which 306 are deserted villages. There are 5 Tribal Blocks in the district viz., Kelapur (Pandharkawada), Zari Jamni, Ralegaon, Ghatanji and Maregaon. The dominating tribes are Kolam, Gond, Pardhan and Andh.

**Primary Data :**

A survey was conducted, through personal interviews of the members of the affected families and collection of relevant information through a pretested questionnaire. A pilot survey was conducted in the years 2008-10.

A two stage stratified sampling with a mix of purposeful sampling at first stage and random sampling at the second stage was adopted.

There are totally 16 taluqas in Yeotmal district. Out of these three taluqas namely Kalamb, Ghatanji and Yavatmal, were purposefully selected considering their proximity. The rational for selecting these talukas was high incidence of problem in each of these taluka. (reference:1,2,3)

Through random sampling method 13 affected, and 13 non affected (total 26) families were selected for the study from these taluqas. Holding in both the groups was about 5 Acres per family on the average. Names of respondents were collected from local news papers. An exhaustive list was also procured from revenue department, which formed the population from which a sample was randomly selected.

Method of collection of data included personal interviews and pre tested questionnaire. All the farmers having land less than 5 acres, normally termed as small and marginal farmers, constituted the sample space. The respondents in case of affected farmers were mostly the victim's wife, in few cases it was the mother of the victim or in rest of the cases it was farmer's grown up son.

Secondary information on State and Central assistance made available to farmers was taken from sources such as new paper, radio news, TV programs and government circulars and from the book Ref No.4

**The Factors included in the Questionnaire:**

About the Questionnaire:  
 Questionnaire given in appendix I ,constituted of , sections  
 A :- Personnel information  
 B :- opinion about important related factors relating to many facets of agriculture as a profession and practice.

**Table No 1. Distribution of questions in the questionnaire according to basic parameters**

Section and Qn No	Description	Data Type and range of values	Basic factor/ Parameter
Q 1	Personal information	Text	
Q 2	rank of Importance regarding Seeds & Fertilizer	11 point scale ( -5 to +5)	Resource availability
Q 3	rank of Importance regarding Water Supply irrigation System	11 point scale ( -5 to +5)	Resource availability
Q4	rank of Importance regarding Infra Structure	11 point scale ( -5 to +5)	Infrastructure
Q5	rank of Importance regarding In-debtness	11 point scale ( -5 to +5)	Stress Indicator Economic
Q 6	rank of Importance regarding Harassment of recovery of loan	11 point scale ( -5 to +5)	Economic
Q 7	Changing Crop Pattern , and Crop Failures	11 point scale ( -5 to +5)	Economic
Q 8	Importance of Remunerative Price	11 point scale ( -5 to +5)	Economic Stress Indicator
Q 9	Apathy of nationalized banks to disburse sufficient crop credit	11 point scale ( -5 to +5)	Infrastructure Stress Indicator
Q 10	Habits Alcoholism & Prevalence of Various Addictions, Gambling	11 point scale ( -5 to +5)	Stress Indicator
Q 11	Showing Importance Regarding Power Supply	11 point scale ( -5 to +5)	Resource availability
Q 12	REGARDING GOVERNMENT POLICY	11 point scale ( -5 to +5)	Infrastructure

Q 13	Importance Regarding Proportionality between Expenditure & earning Yes/No	11 point scale ( -5 to +5)	Economic
Q 14	importance regarding Psychosocial factors & 1) Family disorder 2) Marriage problem of Adult daughter 3) Chronic Diseases Within family 4) Depressions due to loss social & economical status	11 point scale ( -5 to +5)	Stress Indicator
Q 15	importance regarding Development of communication method of transport	11 point scale ( -5 to +5)	Infrastructure

Further focus group discussions were conducted involving the panchayat president, ward member and many farmers in the group discussion some purposeful questions like habits or any health problems or nature of victims were asked and then same notes as a minutes are taken. Additionally some key informant were identified, like old people from the village , from whom valuable additional information on the economic position of their family was obtained.

**Data Analysis:** The data was analyzed using qualitative and quantitative investigate methods such as descriptive statistics, correlations and regression.

**Description about scale and interpretation:**

The farmers were supposed to answer, or award scores in the range of – 5 to 5 , i.e. 11 point scale , the questions from two to fifteen.

Q 2 , Q3 , Q11 were all regarding resources. Whose availability, specially timely availability, quantity , and affordability are very important. A negative score here would imply that the family must have faced problems in arranging for these resources adding to intensity of stress factors

Q4 was specially asked to get information regarding availability of facilitieslike Krushi Utppanna Bazar Samitee, which protect farmers interest. Apart from Q4, Q9, Q15, Q12 were also related with other infrastructure facilities. A negative score here would imply that the family must have faced infrastructural problems leading to intensity of stress factors

Q 5, Q6, Q7, Q8 and Q9 are all economic indicators. A negative

score here would imply that the family must have faced economical problems, resulting in higher intensity of stress factors. If the score is negative then apathy of nationalized bank to disbursed sufficient crop credit is not satisfactory i.e. unsatisfactory. If the score is Positive then apathy of nationalized bank to disbursed sufficient crap credit is satisfactory.

Q 10 Alcoholism and other addictions: Negative score shows more addiction and positive score shows less addiction, in this case. Once again negative score should imply more stress.

Q 13 Whether expenditure is proportional to earnings ? Negative score means farmer was not able earn enough , which is a economic failure of the business end of the activity.

Q 14 psychosocial factors & 1)Family disorder 2) Marriage problem of Adult daughter 3) Chronic Diseases Within family 4) Depression due to loss social & economical status . These are factors which can cause stress. A negative score here is to be interpreted as intensifying the stress.

**Procedure of ranking the questions according to their importance as indicated by their weighted score.**

After computing the total weighted scores for each questions separately for affected and non affected groups, differences were computed and the questions were sorted to determine their ranks. ( See Tables 2,3 ,4 and 5)

A simple process of accounting for Question wise cumulative score

**Table No 2**

Non Controlled / Affected / Bad Farmers														
Score	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
-5				4		1			1			1	3	
-4				6	2	4		1	1	3		1	6	
-3			4	2	8	7		8	6	5	6	11	4	8
-2			2		3	0		1	4	5	5			2
-1						0								
0						0								
1						0								
2			1					2			2			1
3	1	2	1				2	1	1					2
4	7	9	4	1		1	8							
5	5	2	1				3							
Total	13	13	13	13	13	13	13	13	13	13	13	13	13	13

From The above table we have calculated question X number farmers corresponding scores after doing mortification have add it question wise Table of No2 of farmers X score)

Score	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
-5	0	0	0	-20	0	-5	0	0	-5	0	0	-5	-15	0
-4	0	0	0	-24	-8	-16	0	-4	-4	-12	0	-4	-24	0
-3	0	0	-12	-6	-24	-21	0	-24	-18	-15	-18	-33	-12	-24
-2	0	0	-4	0	-6	0	0	-2	-8	-10	-10	0	0	-4
-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	2	0	0	0	0	4	0	0	4	0	0	2
3	3	6	3	0	0	0	6	3	3	0	0	0	0	6
4	28	36	16	4	0	4	32	0	0	0	0	0	0	0
5	25	10	5	0	0	0	15	0	0	0	0	0	0	0
	56	52	10	-46	-38	-38	53	-23	-32	-37	-24	-42	-51	-20

CONTROLLED / Non affected / Good Farmers														
Score	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
-5			1		1						1			
-4											4	1		1
-3			1	2	2		1	2	1	2	4	6	1	2
-2			1		1			3		4	3	3		5
-1			4		3			1		1				1
0				0										
1				1		1			1		1			
2		1			4				6	1			1	2
3	1	3	5	4	2	3	1	7	1	4	3	1	9	2
4		7	1	6		6	4		3	1		2	2	
5	12	2				3	7		1					
	13	13	13	13	13	13	13	13	13	13	16	13	13	13
CONTROLLED / Non affected / Good Farmers														
Score	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
-5	0	0	-5	0	-5	0	0	0	0	0	-5	0	0	0
-4	0	0	0	0	0	0	0	0	0	0	-16	-4	0	-4
-3	0	0	-3	-6	-6	0	-3	-6	-3	-6	-12	-18	-3	-6
-2	0	0	-2	0	-2	0	0	-6	0	-8	-6	-6	0	-10
-1	0	0	-4	0	-3	0	0	-1	0	-1	0	0	0	-1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	1	0	1	0	0	1	0	1	0	0	0
2	0	2	0	0	8	0	0	0	12	2	0	0	2	4
3	3	9	15	12	6	9	3	21	3	12	9	3	27	6
4	0	28	4	24	0	24	16	0	12	4	0	8	8	0
5	60	10	0	0	0	15	35	0	5	0	0	0	0	0
	63	49	5	31	-2	49	51	8	30	3	-29	-17	34	-11

Table 6: Pair wise differences in scores ( non affected - affected ) families

	Description	Controlled	Non Controlled	Difference
Q2	Score regarding Seeds & Fertilizer	63	56	7
Q3	Score regarding Water Supply irrigation System	49	52	-3
Q4	Score regarding Infra Structure	5	10	-5
Q5	Score regarding In-debtteness	31	-46	77
Q6	Score regarding Harassment of recovery of loan	-2	-38	36
Q7	Changing Crop Pattern due Crop Failure	49	-38	87
Q8	Score Importance Regarding Remunerative Price	51	53	-2
Q9	Apathy of nationalized bank to disbursed sufficient crop credit	8	-23	31
Q10	Habits Alcoholism & Prevalence of Various Addiction Gambling	30	-32	62
Q11	Score Regarding Power Supply	3	-37	40
Q12	REGARDING GOVERNMENT POLICY	-29	-24	-5
Q13	Proportionality between Expenditure & earning Yes/No	-17	-42	25
Q14	Score regarding Psychosocial factors & 1) Family disorder 2) Marriage problem of Adult daughter 3) Cronic Diseases Within family 4) Depression due to loss social & economical status	34	-51	85
Q15	Score regarding Development of communication method of transport	-11	-20	9

Table 7 Questions sorted in descending order of differences

Question	Q No	Controlled / Non Affected	Non Controlled	Difference	Rank
Changing Crop Pattern due Crop Failure	7	49	-38	87	1
Score regarding Psychosocial factors & 1) Family disorder 2) Marriage problem of Adult daughter 3) Cronic Diseases Within family 4) Depression due to loss social & economical status	14	34	-51	85	2
Score regarding In-debtteness	5	31	-46	77	3
Habits Alcoholism & Prevalence of Various Addiction Gambling	10	30	-32	62	4
Score Regarding Power Supply	11	3	-37	40	5
Score regarding Harassment of recovery of loan	6	-2	-38	36	6
Apathy of nationalized bank to disbursed sufficient crop credit	9	8	-23	31	7
Proportionality between Expenditure & earning Yes/No	13	-17	-42	25	8
Score regarding Development of communication method of transport	15	-11	-20	9	9
Score regarding Seeds & Fertilizer	2	63	56	7	10
Score Importance Regarding Remunerative Price	8	51	53	-2	11
Score regarding Water Supply irrigation System	3	49	52	-3	12
Score regarding Infra Structure	4	5	10	-5	13
REGARDING GOVERNMENT POLICY	12	-29	-24	-5	14

Factors with extreme differences must be causes of excessive stress. Factors with lesser or negative differences must be the ones where both affected and non-affected farmers face similar situations, implying that these factors cannot be the causes for stresses. A look at the above table shows that Qn's ranked 1 to 5 are showing prominent differences where the rest may not be considered to be difference. Currently the selection of the critical cut off is arbitrary. We hope to be able to come up with a proper theoretical way to determine the cut off in our future attempts at analysis.

It is interesting to note that the factors identified are

Q7 ~ Crop failure, Q14 ~ Psychological factors, Q5 ~Indebtedness , Q10 ~Alcoholism and Addictions, Q11~ (non availability) of Power supply.

Factors (Q14) , and (Q10) , possibly are indirect in the sense that Q7, Q5, and Q11 could be either causing or intensifying the effects of these. ( .... Can be proved with help of rule bases generated by association mining ...)

**Comparison Table of Good & Bad Farmers First Three main reason.**

Changing Crop Pattern due Crop Failure			importance regarding Psychosocial factors & 1) Family disorder 2) Marriage problem of Adult daughter 3) Chronic Diseases Within family 4) Depressions due to loss social & economical status			rank of Importance regarding In-debtness		
Q 7			Q 14			Q 5		
	Bad	Good		Bad	Good		Bad	Good
Score	Non Controlled	Controlled	Score	Non Controlled	Controlled	Score	Non Controlled	Controlled
-5	1	0	-5	3	0	-5	4	0
-4	4	0	-4	6	0	-4	6	0
-3	7	0	-3	4	1	-3	2	2
-2	0	0	-2	0	0	-2	0	0
-1	0	0	-1	0	0	-1	0	0
0	0	0	0	0	0	0	0	0
1	0	1	1	0	0	1	0	1
2	0	0	2	0	1	2	0	0
3	0	3	3	0	9	3	0	4
4	1	6	4	0	2	4	1	6
5	0	3	5	0	0	5	0	0

**The Fuzziness of Suicidal tendency Measure:**

It is obvious that for such a problem, the universal set would be U = {All Farmers in Ghatanji, Yavatmal, Kulamb taluka} .....(1)

Farmers are all a frustrated lot. Reasons for their frustrations could be many. Most important is the fact that 'frustration' is not a two valued metric. We cannot define a logical variable say 'frustration', which can take values ('frustration' = TRUE) = 1 or ('frustration' = FALSE) = 0 .....(2)

and no other value . Hence the statement 'farmer A is frustrated' does not fall in the traditional two-valued logic. The consequence is that we may have alternative descriptions like 'he is extremely frustrated', ' he is some what frustrated', ' he is not at all frustrated' and so on. Hence 'frustration' be comes an ideal 'metric' which defines a multi-valued logic in a real situation. It is the level of frustration that leads ultimately a person to take extreme actions like suicide.

Consider the function F: U [0,1] ..... (4)

where U is the universal set defined in (1), F(x) for any x belonging to U is a truth value in the interval [0,1] measuring the **degree of frustration** of the farmer x. This metric has been used in the coming discussions , to define the fuzzy sets G, M and L according to the theory of fuzzy logic

Hence we define a three level logic G = {Extremely frustrated} = {Farmers who are in great trouble} = {

$x | F(x) > g\}$

**M = { Moderately frustrated } = {Farmers having moderate trouble} = { x | g ≥ F(x) > m }  
**L = { Lowly frustrated } = { Farmers having least trouble } = { x | F(x) ≤ m } .....(3)****

Such a fuzzy classification of farmers would be meaningful as , we may associate strength suicidal tendency to the level of frustration. It would be natural to say that Member of L are the ones who are frustrated but are most unlikely to commit suicide. Determining the appropriate ranges of membership values , i.e the correct choices for g and m ,which separate the classes is currently arbitrary. We hope at arrive at these values , in more scientific way in near future.

**Fuzzyfication:**

Thus every member of the universe will have some grade suffering, a value between 0 and 1 associated with him. There has to be some relation with the grade of suffering and the tendency to commit suicide. The function F : U [0,1] , as defined in eq(4) and further exemplified in the earlier part of this section , can be evaluated using information obtained in each survey form. Closer the value of F(x) to 1, higher would be the tendency to commit suicide.

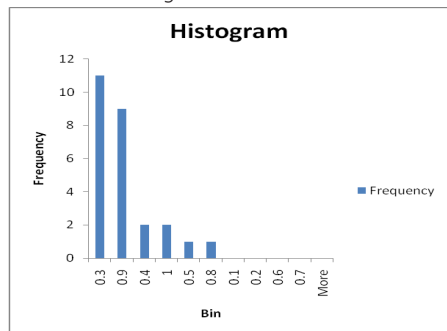
A simple way to construct F, would be to convert the opinions of the farmers , from -5 to 5 into a 0-1 scale, with 0 indicating most negative (-5) opinion and 1 indicating (+5). Approach is quite simple and elementary. But should serve the purpose at this point of time . Table 7 shows the conversion of scaled responses to the selected top five aggravators into (0-1) range and then construction of F(x) as indicated in column 7.

**Table 7 : Item wise fuzzy score (0-1) of top 5 causes for distress**

sr no	affected/ Non Controlled Farmers Name	Crop Failure	Psychosocial factors & 1) Family disorder 2) Marriage problem of Adult daughter 3) Chronic Diseases Within family 4) Depression due to loss social & economical status	Importance regarding In-debtness	Habits Alcoholism & Prevalence of Various Addiction Gambling	Table Showing Importance Relabeling Power Supply	Avg distress score F(x)= 1 - avg	Fuzzy Frustration level
1		2	3	4	5	6	7	8
1	SANDIP SHANKAR BHUJADE	0.9	0.1	0.9	0.3	0.3	0.5	

2	MAROTI KASHINATH KHOTE	0	0.2	0	0	0.1	0.96	
3	muktabai Dadu Rathod	0.2	0.1	0.1	0.2	0.3	0.86	
4	RAJU UDAYBHAN GADEKAR	0.1	0.2	0	0.3	0.2	0.84	
5	MEERABAI BALWANT KATHANE	0.1	0	0.1	0.3	0.3	0.84	
6	EKNATH NAMEDEORAO DESHMUKH	0.2	0	0.2	0.2	0.1	0.86	
7	MOTIAM MAROTI KAWANE	0.1	0	0	0.2	0.2	0.90	
8	SANJAY DHARAMSING THAKUR	0.2	0.2	0.1	0.3	0.3	0.978	
9	SUDDHODHAN BALAK WANKHEDE	0.2	0.1	0	0.8	0.3	0.72	
10	TULJABAI RAMAJI NAGPUURE	0.2	0.2	0.1	0.2	0.2	0.82	
11	AMBADAS SHANKAR WARNE	0.2	0.1	0.1	0.1	0.2	0.86	
12	SHILPA AMBADAS NITURE	0.2	0.1	0.2	0.2	0.2	0.82	
13	SANJAY ANDANDRAO KUMARE	0.1	0.1	0.1	0.2	0.1	0.88	
	non affected/ Controlled							
14	VISHWANAT HARIBHAU KANANDE	0.9	0.7	0.8	0.6	0.4	0.32	
15	BHAURAO GHODSHAHI CHAVAN	1	0.8	0.9	0.7	0.3	0.26	
16	DADARAO KESHAVRAO MESHRMA	0.9	0.8	0.8	0.7	0.3	0.30	
17	RAMESH GOVINDRAO KADU	1	0.8	0.9	0.7	0.7	0.28	
18	RAMJI FAKIRA SAWARKAR	0.9	0.8	0.9	0.9	0.2	0.26	
19	SANJAY KISANRAO SHIBRE	1	0.8	0.9	0.7	0.2	0.28	
20	PANDIT VISHWANATH BHAGAT	0.9	0.8	0.9	0.7	0.3	0.28	
21	KRUSHNA CHAMPAT MESHRAM	0.9	0.9	0.9	0.7	0.3	0.26	
22	CHANDRAMOHAN SUBHASH GIRI	0.9	0.9	0.8	0.2	0.9	0.26	
23	GUJABRAO MAROTRAO NALGE	0.8	0.8	0.2	0.9	0.8	0.30	
24	NIRMALABAI SHYAMRAO WAGHAMRE	0.8	0.8	0.2	0.9	0.8	0.30	
25	Yadvarao Motiram Nikam	0.6	0.2	0.8	1	0.8	0.32	
26	BALAK RAMJI WANKHEDE	0.8	0.8	0.7	0.8	0.8	0.22	

The Pareto chart shows that there are max respondents are in 0.9- bin and 0.3 bin . Showing that these are the extreme critical values.



Taking a clue from above figure, we have defined fuzzification such that score of 0.9 and above would indicate sure suicidal tendency, and 0.3 and below would indicate zero suicidal tendency. In the interval 0.5 to 0.9 suicidal tendency is dominant , where as in 0.3 to 0.5 the tendency cannot be ruled out but is feeble. Hence we define

If  $F(x) \geq 0.90$  then  $G(x) = 1, M(x) = L(x) = 0$ .  
 If  $F(x) < 0.90$ , and  $\geq 0.50$  then  $G(x) = (F(x) - 0.5)/0.4, M(x) = 1 - G(x), L(x) = 0$   
 If  $F(x) < 0.50$ , and  $> 0.30$  then  $G(x) = 0, M(x) = (F(x) - 0.3)/0.2, L(x) = 1 - M(x)$   
 If  $F(x) < 0.30$  then  $G(x) = 0, M(x) = 0, L(x) = 1$

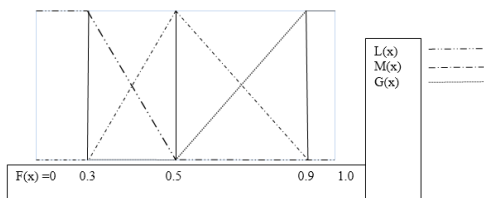
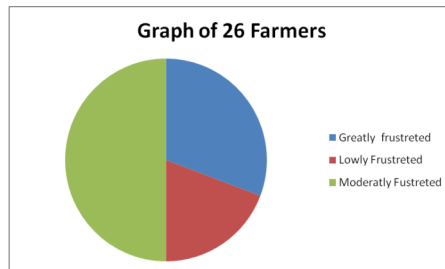


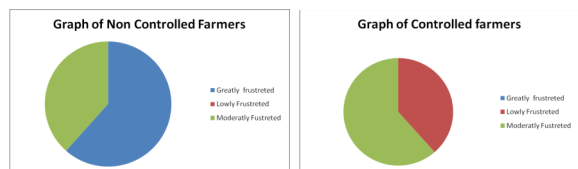
Table : 11 Values of F(x) , G(x) , M(x), and L(x)

sr no	Farmers ID	F(x)	G(x)	M(x)	L(x)	Remark
	1 Affected/ Non Controlled					
1	Sandip Shankar Bhujade	0.5	0.00	1.00	0	
2	Maroti Kashinath Khote	0.96	1	0	0	
3	muktabei Dadu Rathod	0.86	0.90	0.10	0	
4	Raju Udaybhan Gadekar	0.84	0.85	0.15	0	
5	Meerabai Balwant Kathane	0.84	0.85	0.15	0	
6	Eknath Namedeoraio Deshmukh	0.86	0.90	0.10	0	
7	Motiam Maroti Kawane	0.90	1	0	0	
8	Sanjay Dharamsing Thakur	0.978	1	0	0	
9	Suddhodhan Balak Wankhede	0.72	0.55	0.45	0	
10	Tuljabai Ramaji Nagpuure	0.82	0.80	0.20	0	
11	Ambadas Shankar Warne	0.86	0.90	0.10	0	
12	Shilpa Ambadas Niture	0.82	0.80	0.20	0	
13	Sanjay Andandrao Kumare	0.88	0.95	0.05	0	
	Non affected / Controlled					
14	Vishwanat Haribhau Kanande	0.32	0	0.10	0.90	
15	Bhaurao Ghodshahi Chavan	0.26	0	0	1	
16	Dadarao Keshavrao Meshrma	0.30	0	0	1	
4	Ramesh Govindrao Kadu	0.28	0	0	1	
5	Ramji Fakira Sawarkar	0.26	0	0	1	
6	Sanjay Kisanrao Shibre	0.28	0	0	1	
7	Pandit Vishwanth Bhagat	0.28	0	0	1	
8	Krushna Champat Meshram	0.26	0	0	1	

9	Chandramohan Subhash Giri	0.26	0	0	1		
10	Gujabrao Marotrao Nalge	0.30	0	0	1		
11	Nirmalabai Shyamrao Waghmare	0.30	0	0	1		
12	Yadvarao Motiram Nikam	0.32	0	0.10	0.90		
13	Balak Ramji Wankhede	0.22	0	0	1		



Farmers	Greatly frustreted	Lowly Frustrated	Moderatly Fustrated
C	0	5	8
N C	8	0	5
Grand Total	8	5	13



Conclusions from the analysis of questionnaire

Q. No. 7 :- We find difference of opinion regarding changing corp due to Crop failure, Non controlled group has given negative score and controlled group has given positive score.

Q. No. 5 :- It seems that effect of indebt-ness is more in case of non control group & at is less in care of control group.

Q. No. 14 :- No doubt everybody has a problem but it can be seen from data thru non control group farmers have great intercity as compare to control group problem. Non controlled group has given negative score and controlled group has given positive score.

It is cleared from the Graph Moderately frustrated farmers who has done suicide (5 out of 13 means 38.46%) could be saved.

Analysis and Inferences

According the study is based on the data generated form both secondary as well as primary field sources in three selected taluka. The psychological, social and financial impact of suicide on the family and community though it is immeasurable in my research paper I want to try to measure impact of above factors in terms of degree of suffering with the help of fuzzy mathematics. Firstly with the help of weighted score we have determined the preferences of causes alcoholism it is due to which farmers are being driven to indebtedness but it is very difficult to prove this just as we can feel air but cannot see it. We went to state excise office and collected information Table No 10 thus suicide is avoidable by banning alcoholism truly Most of the victims were married and by committing suicide left behind their young family members to suffer the struggle for survival. It is to be noted that no suicide case out of distress has been reported from joint family background. The average size of the family is between 5to 6 members 2 adults and 3 children/ 3 adults and three children some of these families have come out of the larger families just a few years ago. It may be noted that in the joint family structure, subsist tencecrises are mitigated and managed through collective efforts by the family members. Whereas in nuclear family setup collective risk mitigation strategies are absent and uneven economic crises would distress conditions among the family members and coping mechanisms also their own limitation. According to this research paper priority though there are many reasons for suicide the main

causes are Q 7, Q5 & Q 14. But according to government policy government sanctioned government relief if the main causes are Q7, Q5 & Q6. I don not agree with reasons given in Q 6.

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