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FARMERS' AWARENESS AND PERCEPTION ABOUT LIVESTOCK INSURANCE IN DHANUSHA DISTRICT, NEPAL

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Abstract: A study on farmers' awareness and perception about livestock insurance was conducted in Janakpur sub metropolitan city of Dhanusha district, Nepal with a sample of 120 households, 60 insured and 60 non-insured households through interview schedule, focus group discussion and key informant interview. Results revealed that the majority of the respondents' altogether (83%) have knowledge about livestock insurance. About 82 % among non-insured and 32% among insured respondents were not acquainted with premium and subsidy schemes. Around 60% of insured respondents stated that Insurance Company as primary source of awareness while 69% of non-insured respondents stated Radio/TV as main source of awareness. Farmers were found well satisfied with current valuation techniques of animals and the subsidy policy of the government but were disappointed with claim procedure; requirements of documents and the time taken by insurance companies to settle the claim. Diseases were found to be a major risk associated with the farmers. Documentation procedure ($p=0.04$), membership by the farmers in any organizations / groups ($p=0.034$), farmers contact with extension personnel ($p=0.025$) and knowledge on premium subsidy ($p=0.005$) were perceived as key factors influencing the adoption of livestock insurance. Illiteracy and limited awareness about the available facilities and publicity of schemes were found to be major constraints for not joining the livestock insurance. Policy makers should focus on proper mechanisms for publicity of the premium and subsidy schemes and finding a proper channel to ease the claim procurement process to increase the adoption of livestock insurance.

Keywords: Documentation, Livestock insurance, Premium, Subsidy.

INTRODUCTION

In Nepal, about 17% of the population still lives in absolute poverty having a per capita income of US $1085 and a Gini coefficient of 0.328 (MOF, 2018). Being an agricultural country, agriculture contributes about 26.50 % to national GDP and around 65.6 % population associated with agriculture as their major sources of income (CBS, 2019). Livestock covers 32 % of agricultural GDP and 11.5 % of total country GDP (Bhatta *et al.,* 2018). Small holding systems where a small number of livestock being raised by farmers and performs subsistence farming in those holdings are the major characteristics of the Nepalese agriculture system. The rural population of this country is most favored livestock production by cattle rising, goat farming, and poultry rearing. Direct impacts of climate change have already been experienced in the country on the field of temperature rise, flood, drought, incidence of

disease, pests, and insects, etc. on agricultural economy (Malla, 2008; CBS, 2017).

According to the data of 2016-17 published by the Nepalese Ministry of Agriculture and Livestock Development, agriculture sector specially standing crops, food grains and fisheries, was subjected to the loss of around 8.11 billion Nepali rupees (US $ 81.1 million) due to the flash flood. Similarly according to the report of Ministry of Land Management, Agriculture and Cooperatives, province 2 in 2017, the loss caused due to flood in livestock sector was worth around 1.62 billion Nepali rupees possessing the sensitivity of Nepalese economy to climatic variability with significant loss experienced in past due to its impacts. To withstand different risks and make it advantageous, the most widely known management option is Agriculture Insurance (AI) (Smit and Skinner, 2002; Warner *et al.,* 2013). Agricultural Insurance simply covers the compensation of financial part of the farmers occurred due to all types of risk or uncertainties whether they are named or unforeseen perils (AIC, 2008) or simply a property insurance which is confined to agricultural firms (Iturrioz, 2009), a form of risk transference in agriculture (World Bank, 2011) helps farmers for easy access to credit (Vandeveer, 2001) and also improves the livelihoods of farmers through financial support (NARC, 2016).

In Nepal, the insurance history in agriculture goes back to seven decades ago though it was implemented as a separate policy from 2013 after promulgation of' Crop and Livestock Insurance Directives (CLID) 2013. Currently 19 life insurers, 20 non-life insurers and 1 composite insurer are providing commercial insurance service (Insurance Board, 2017). The Insurance Board established under Insurance Act 1992 supervises and regulates the insurance market. Comparing the policies of past five years by insurance board, it was found that the insured amount has increased fourfold in the past five years but still agricultural insurance of Nepal is highly influenced by limited awareness and its limited flow of service (World Bank, 2009 a & b; Ghimire, 2013; Ghimire *et al.,* 2016). Farmers are concerned only with the subsidy or grant received in terms of money which is the foremost factor that made program linked insurance a major failure and unable to create large scale awareness affecting the adoption of agriculture insurance (Timilsina, 2018).

Dhanusha district is surrounded by Bihar, India in south and Churiya range in North side which lies between Latitude 25° 35' to 27° 50' due North and Longitude 85°50' to 86°20'. It has a total population of 754777, out of which 378538 (50.15%) being males and 376239 (49.84%) females (CBS, 2011) and around 72 % of the population is associated with agriculture (AKC, 2020). The district is 60.89 to 609.76 meter above the sea level and area covered by this district is about 1180 square kilometer (AKC, 2020). The total livestock population of this district including fowl and duck is around 8.2 million which constitutes around 8 % of total livestock population of country (MOALD, 2018).

General objective of this survey was to assess the level of farmers' awareness and level of satisfaction about livestock insurance in Dhanusha district of Nepal while specific objectives were: (a) to depict major risks and mitigating measures associated with livestock farmers of study site, (b) to find out factors influencing the adoption of livestock insurance in Dhanusha district and (c) to carry out problems affecting farmers participation in livestock insurance program.

MATERIALS AND METHODS

Study site and subsectors

This study was conducted in inner Terai region of the eastern Nepal and Dhanusha district was selected purposively as per the farmers increased involvement towards livestock insurance. The study site, Janakpur sub metropolitan city was selected as reference sample for the study as per the secondary data obtained from insurance company and with the consultation of Agriculture Knowledge Center (AKC), Dhanusha.

Sample size, sampling procedure and selection of the respondent

Primary data were collected through household questionnaire survey of 120 households (60 insured and 60 non-insured respondents). Janakpur sub metropolitan city was selected for

the purpose of study through the discussion (FGD) with Veterinary Hospital and Livestock Service Knowledge Center (VHLSEC), AKC and KII (Key informant Interview) with insurance companies. The insurance company was located in the study site and three wards *namely* 20, 21 and 22 from that cluster were selected based on secondary data obtained from insurance company. From that list altogether 120 samples were selected (60 insured and 60 non-insured farmers) by using simple random sampling method. Final sample size consists of 120 farmers (20 insured and 20 non-insured farmers from each ward) involving both livestock insured and non-insured farmers. The primary data were collected through questionnaire survey which was coded first and entered into the computer. Data entry and analysis was done by using Statistical Package for Social Science and Microsoft Excel. Data were analyzed by using regression model, logit model based on logistic probability function, indexing of constraints of agriculture insurance adoption, awareness level of non-insured farmers and other econometric models. Secondary information related to livestock insurance were collected from AKC and VHLSEC Dhanusha, MOALD, CBS. The survey was conducted from Feb. to March 2020.

RESULTS AND DISCUSSION

Socio-economic and demographic information of the respondents

On the basis of survey study, different socioeconomic aspects like respondents' age, sex, educational status, family size, and primary source of income for both insured and non-insured farmers were calculated, analyzed and presented in table 1.

1. Age group

Results revealed that the average age of the respondents for insured farmers was about 44 years and for non-insured farmers it was about 47 years. Comparing both respondents it was found that number of age group below 35 was found more in insured case than that of non-insured farmers and age group is directly related with the perception of the individual.

2. Sex

Upon analysis of result it was found that 85 % of insured farmers were male and 15 % were female whereas in case of non-insured respondents 91.6 % were male and 8.4 % were female.

3. Education status

The educational status of respondents were categorized into four categories, *namely* illiterate (who cannot read and write), primary (who gain informal education and can only read and write), secondary (up to ten), higher secondary (upto twelve) and graduate/university. Upon analysis, result revealed that 35 % of insured farmers had obtained secondary level education followed by primary level education (28.3) % while majority (43.3 %) of non-insured farmers had obtained primary level education followed by illiterate (28 %). Comparing both, it was found that in case of non-insured respondents,' numbers of illiterate farmers were more than to insured ones. On the other hand, the number of respondents having secondary and higher education were found more in case of insured respondents and it is well known that education possess positive impact upon social, cultural and economic change of society.

4. Family size

The size of family for both cases was categorized into two categories: up to five members and above five members. Family average size was found almost same in both cases however frequency of family member above five was found more in case of non-insured respondents.

5. Ethnicity

Result revealed that yadav ethnicity of people was found more in both cases followed by Sah / Mahato ethinic.

6. Primary source of occupation

Result revealed that primary occupation of majority of farmers in both cases (75 % in case of insured and 70 % in case of non-insured) was agriculture followed by remittance (8.3 % and 23.3 % respectively). Occupation of people in any community reflects its commercial, business and employment opportunity along with overall micro-economic situation of that locality determining their life style and living standard.

Household and farm characteristics in the study area Average land holding size (in ha)

Average land holding size in case of insured

Table 1: Socioeconomic characteristic of the respondents.

Characteristics	Insured	Non insured
Respondents Age		
Below 35	21	18
35-60	33	35
Above 60	6	7
Average age	43.88	47.21
Sex		
Male	51(85)	55(91.6)
Female	9(15)	5(8.4)
Education status		
Illiterate	6(10)	17(28.3)
Primary level	17(28.33)	26(43.3)
Secondary level	21(35)	9(15)
Higher Secondary	13(21.67)	6(10)
University level	3(5)	2(3.34)
Family size		
Upto 5 members	44(73.33)	40(66.67)
Above 5 members	16(26.67)	20(33.33)
Avg. size	5.1	5.23
Ethinicity		
Yadav	23(38.33)	19(31.67)
Sah/Mahato	21(35)	15(25)
Muslim	7(11.67)	11(18.33)
Others	9(15)	15(25)
Primary source of Occupation		
Agriculture	45(75)	42(70)
Business	2(3.3)	0
Service	3(5)	1(1.7)
Labor	5(8.3)	3(5)
Remittance	5(8.3)	14(23.3)

Figure in the parenthesis indicate percentage

respondent was 2.42, average land holding as lowland was 1.925 and average land holding as upland was 0.495 which was found more as compared to non-insured respondent from the survey as shown in table 2.

Table 2: Average size of land holding of respondents.

	Insured respondents			Non- insured respondents		
Land (ha)	**Minimum**	**Maximum**	**Mean**	**Minimum**	**Maximum**	**Mean**
Total land holding	1.5	4	2.42	1.2	3.5	2.017
Lowland	1.25	3	1.925	0.75	2.25	1.562
Upland	0.25	1	0.495	0.15	1	0.455

The result revealed that average land holding capacity and average land holding capacity as lowland of insured farmers was more than that of non-insured farmers while average land holding capacity as upland for both respondents were almost the same.

Income share from various sources in the sampled households

The shares of income generating activities in the households are presented in figure 1. The predominant share in income generating activities was from agriculture (65%) followed by remittance (13%), service (10%), labor (7%) and business (5%).

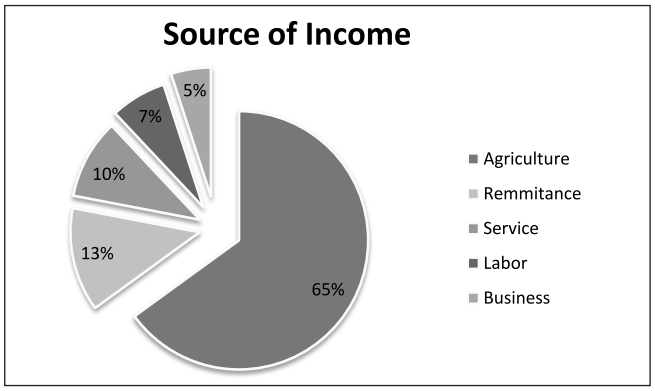

Figure 1: Income share from various sources of respondents.

Institutional and social characteristics of households

Majority of the households (71.7%) in case of insured respondents were part of certain organization like agriculture cooperatives, farmer group but in case of non-insured respondents majority (65%) were not attached with any type of organization. The result revealed that persons involved in organizations were more concerned towards the benefits of agriculture insurance.

Participation in agriculture and other educational meeting influence the adoption of agriculture insurance. Generally, farmers involved in training and meeting are quick to learn about the insurance and its scheme. In case of insured respondents, 61.7 % had previously participated in certain kind of agriculture and educational training where they were able to learn more about agriculture insurance but non-insured majority (68.3%) had not participated in any agriculture training.

Similarly, the result revealed that majority (55%) of the farmers in case of insured respondents were getting institutional support regarding the different aspects and scheme of agriculture insurance but majority (87%) in case of non-insured respondents lack institutional support and coordination as shown in table 3.

Socio economic factors and its influence

Findings as shown in table 4 revealed that among total respondents, 57% of them indicated risks surrounding livestock as major influencing factor in making decision to go for livestock insurance to a very large extent. About 51% of the total respondents indicated cost of insurances influencing their decision to go for insurance to a very large extent.

Farmers awareness on livestock insurance and its premium scheme

Results on awareness level of farmers about livestock insurance and its premium scheme as shown in table 5, revealed that all the insured (100 %) respondents and majority of non-insured respondents (65%) were aware about livestock insurance but only 18% of non-insured respondent and about 68% of insured respondent were found to have knowledge about its premium scheme.

Table 3: Institutional characteristics of the respondents.

Variables	Characteristics	Insured (n=60)	Non insured (n=60)	Total (N=120)
Involvement in organization	No	17(28.3)	39(65)	56(46.7)
	Yes	43 (71.7)	21(35)	64(53.3)
Agricultural training	No	23(38.3)	41(68.3)	52(43.33)
	Yes	37(61.7)	19(48.3)	68(56.67)
Access of credit facility	No	20(33.33)	25(41.67)	45(37.5)
	Formal credit institution	38(63.33)	34(56.67)	72(60)
	Neighbor	2(3.34)	1(1.66)	3(2.5)
Technical access for agriculture production	Easy	27(45)	15(25)	42(35)
	Difficult	33(55)	45(75)	78(65)
Institutional support in Agriculture Insurance	No	27(45)	52(86.67)	79(65.83)
	Yes	33(55)	8(13.3)	41(34.17)

Figure in the parenthesis indicate percentage

Table 4: Influence of socio economic characters on livestock insurance.

Statement	No extent at all		Small extent		Neutral extent		Large extent		Very large extent		Total (%)	
	F	%	F	%	F	%	F	%	F	%	F	%
Cost of insurance	3	2.5	4	3	29	24	23	19.2	61	51	120	100
Risk surrounding farming	0	0	4	3	30	25	18	15	68	57	120	100
Agriculture education/ training	13	10.8	31	26	37	31	4	3.33	35	29	120	100
Debt from credit institutions	19	15.8	37	31	21	18	30	25	13	11	120	100
Income generated for farming	6	5	27	23	19	16	30	25	38	32	120	100

Table 5: Awareness level of farmers regarding livestock insurance.

Awareness	Insured	Non insured	Total
Awareness on livestock insurance			
Yes	60(100)	39(65)	99(82.5)
No	0	21(35)	21(17.5)
Awareness on premium and subsidy scheme			
Yes	41(68.3)	11(18.3)	52(43.3)
No	19(31.7)	49(81.7)	68(56.7)

Figure in the parenthesis indicate percentage

Sources of farmers' awareness

Findings revealed that insurance companies (60%) being the major source of awareness followed by AKC/VHLSEC (53.3%) in case of insured respondent while Radio/TV (69.2 %) was found to be a major source of awareness followed by insurance companies in case of non - insured respondents. Other sources of awareness were illustrated in table 6.

Table 6: Different source of awareness.

Source of Awareness	Insured (60)	Non-insured (n=39)
Insurance Company	36(60)	24(61.5)
AKC/VHLSEC	32(53.3)	11(18.3)
Radio/TV	27(45)	27(69.2)
Bank/Co-operatives	11(18.3)	7(18)
Neighbors	9(15)	5(12.8)
Newspapers	11(18.3)	6(15.3)

Figure in the parenthesis indicate percentage

Risk perceived by livestock farmers

Findings about the risk perceived by livestock farmers were depicted in figure 2. The result showed that disease was main risk perceived by farmers followed by parasites, and infertility. In case of insured farmers, disease was found to be a major risk (37 %) followed by infertility (25 %), parasite (18 %), natural calamities (12 %) and attack of wild animals (3 %).

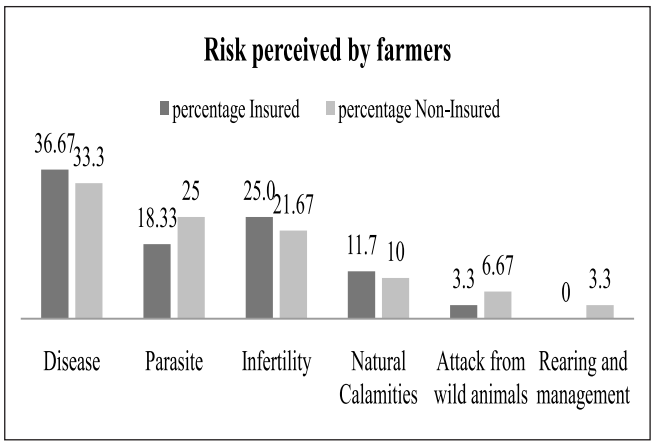

Figure 2: Different risk perceived by livestock farmers.

Risk reduction strategies in livestock farming

Survey result revealed that farmers were familiar with the different type of techniques for risk minimization (table 7). Insured farmers besides using insurance (100 %) were also using timely treatment and consultation with veterinary expert (75%), sanitation and management practices (68.3 %), feed and feeding behavior (56.67 %), vaccination against major diseases (48.3 %) and infrastructure maintenance (45 %). In case of non-insured farmers, most of the respondents (45 %) used timely treatment as main strategies followed by sanitation (36.67%), feeding behavior (33.3 %), vaccination against major diseases (21.67 %) and infrastructure maintenance (11.67 %).

Farmers' satisfaction on different aspects of livestock insurance

Farmers' level of satisfaction was summarized by using 4-point scale model. This model was specially used for the farmers who had insured their livestock indicating their level of satisfaction on various aspects on the part of insurance policy. As described in the table 8, the insured respondents were found satisfied in the aspect of premium to be paid, risk coverage, and insurance procedure and requirements. Similarly, result revealed that respondents were well satisfied with the techniques used for animal valuation and the policy about subsidy provisioned by government. However, farmers showed disappointment on the aspect of process regarding claim procedure, its requirements and quickness for claim settlements by insurance company. Several respondents (21.66 %) do not know about claim procedures.

Table 7: Different risk reduction strategies used by respondents.

Strategies	Insured		Non-insured	
	Frequency	Percentage	Frequency	Percentage
Insurance	60	100	0	0
Timely treatment and consultation with veterinary experts	45	75	27	45
Vaccination against major diseases	29	48.3	13	21.67
Sanitation and management practices	41	68.3	22	36.67
Infrastructure maintenance	27	45	7	11.67
Feed and feeding materials	34	56.66	20	33.3

Figure in the parenthesis indicate percentage

Table 8: Satisfaction level of insured respondents on different aspects of livestock insurance.

Perception	Very Satisfied	Satisfied	Not satisfied	Do not know	Total
Risk Coverage	19(31.67)	30(50)	11(18.33)	0	60(100)
Valuation of animals	31(51.67)	19(31.67)	10(16.66)	0	60(100)
Premium amount	24(40)	36(60)	0	0	60(100)
Subsidy policy of Government	37(61.67)	15(23.33)	5(8.3)	3(5)	60(100)
Insurance procedure and requirements	7(11.67)	24(40)	19(31.66)	10(16.67)	60(100)
Claim procedure and requirements	0	7(11.67)	40(66.67)	13(21.66)	60(100)
Quickness in paying payments	2(3.33)	9(15)	39(65)	10(16.67)	60(100)

Figure in the parenthesis indicate percentage

Farmers' with their insured livestock commodities

Result revealed that majority of the insured respondents (33 %) has insured cattle followed by buffalo (30 %), poultry (19 %) and goat (18 %). The cattle was found to be major insured livestock commodities by the farmers (fig. 3) while from the discussion with Insurance Companies, they illustrated that insurance on poultry and goat has increased rapidly in recent years than that of cattle. Total number of poultry insured by farmers was 14050 with the highest number of 3500 followed by goat (681) with highest number of 57, cattle with highest number 5, and buffalo with highest number 5 as illustrated in table 9.

Factors influencing the adoption of livestock insurance

After considering dependent variable as adoption of livestock insurance ('Yes' or 'No') which was dichotomous dependent variable against different seven explanatory variables, logistic regression model was used and result was analyzed to determine the influence of those factors upon adoption of livestock insurance. All the seven explanatory variables tested in this model are given in table 10. These were documentation process (1 for yes, 0 otherwise), membership in any organization (1 for yes, 0 otherwise), premium paying capacity (1 for yes, 0 otherwise), farmers contact with extension personnel (1 for yes, 0 otherwise), knowledge about premium subsidy given on insurance (1 for yes, 0 otherwise), mass media and their access for agricultural information (1 for yes, 0 otherwise), claim payment process (1 for yes, 0 otherwise). Upon analysis of R square value, it showed that 46 % variance was covered by this model. Among

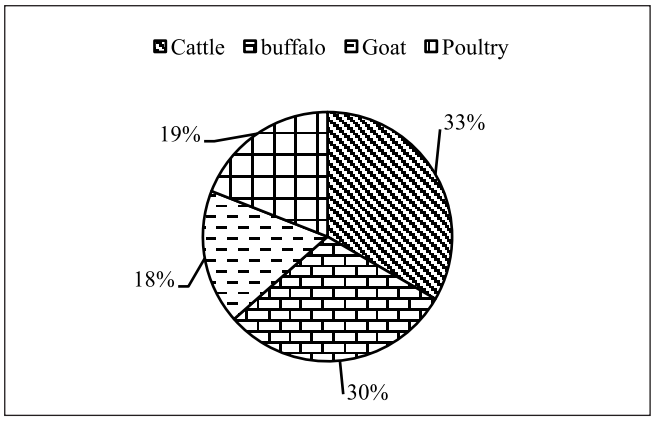

Figure 3: Share of livestock commodities insured.

the different explanatory variables documentation procedure (p=0.04), farmers membership and involvement in organization (p=0.034), farmers contact with extension personnel (p=0.025) and knowledge on premium subsidy (p=0.005) were found to be the major factors contributing significantly towards the adoption of the insurance.

Table 9: Respondents with corresponding livestock's insured.

Livestock commodities	No. of farmers	No. of livestock Insured
Cattle	21	61
Buffalo	19	55
Goat	11	681
Poultry	12	14050

Table 10: Factors influencing livestock adoption.

Explanatory Variables	Odd ratio	SE	P-value
Ease in Documentation Procedure (1 yes, 0 otherwise)	0.258	1.005	0.04**
Member in organization (1 yes, 0 otherwise)	0.203	0.059	0.034**
Premium paying capacity (1 yes, 0 otherwise)	1.105	0.037	0.543
Contact with extension personnel (1 yes, 0 otherwise)	0.237	0.754	0.025**
Knowledge on Premium subsidy (1 yes, 0 otherwise)	0.145	0.589	0.005***
Access of Mass media (1 yes, 0 otherwise)	0.274	1.004	0.148
Claim payment process (1 yes, 0 otherwise)	0.452	0.889	0.12
Log Likelihood	59.32		
Cox and Snell R square	0.463		

Note: *** Significant at 0.01, and ** significant at 0.05; S.E= Standard Errors

According to result revealed, odd ratio indicates that it is about 72 % more likely to reduce adoption of livestock insurance if the documentation process is not simplified. Similarly 80 % of respondents were more likely to reduce insurance if farmers not being members of any organization. But the major explanation was on knowledge on premium subsidy. Majority (85 %) of respondents showed complexity about premium subsidy as the main determinant of livestock adoption.

Problems affecting non-insured farmers in joining livestock insurance program

Altogether six parameters were found as problems related to non-insured respondents in

joining livestock insurance and further, ranking was done on the basis of frequency obtained. The result on factors affecting non-insured farmers in joining livestock insurance on the basis of ranking index revealed that limited awareness facilities available ranked first as major reason for not joining livestock insurance followed by inadequate publicity of the scheme.

Table 11: Major problems for non-insured farmers in joining livestock insurance program.

Reasons for not joining Agriculture Insurance	Frequency	Percentage	Rank
Lack of awareness on facilities available	43	71.67	I
Inadequate publicity of the scheme	36	60	II
Complex documentation	34	56.67	III
Delay in claim payment	29	48.34	IV
No need of insurance	11	18.34	V
Lack of premium paying capacity	3	5	VI

Note: *** Significant at 0.01, and ** significant at 0.05; S.E= Standard Errors

Table 12. Suggestion for improving livestock insurance.

Strategies	Insured		Non-insured	
	Frequency	Percentage	Frequency	Percentage
Quick settlements of claim	23	38.3	12	20
Making scheme compulsory for all livestock growers	18	30	14	23.3
Insurance service at your doorstep/ village level	17	28.3	25	41.7
Improvement of implementation	21	35	17	28.3
Awareness and publicity of schemes clearly	26	43.3	31	51.7
Reduce premium	31	51.7	7	11.7

Suggestion for improving the livestock insurance

There are some ways to improve livestock insurance in Province 2. They have been illustrated in table 12. Majority of insured farmers (51.7 %) suggested reducing premium followed by awareness and publicity schemes (43 %). They suggested establishing premium rate based on herd size, as premium to be paid on per animal basis which appears huge for commercial livestock growers. About 38 % of them suggested on quick settlements of claim, 35 % of them suggested on implementation mechanism and 30 % suggested making insurance scheme compulsory for all livestock growers.

In case of non-insured respondents, about 52% of non-insurer suggested on awareness and publicity scheme followed by insurance service at local level (42 %), improving the implementation mechanism (28 %), making scheme compulsory for all livestock growers (23 %), quick settlement of claims to resume the business immediately after loss (20 %) and premium rate (12 %).

CONCLUSION

Most of the farmers in study area were found aware about insurance on livestock but most respondents among non-insured farmers have limited information regarding the premium and

subsidy scheme of government. The major source of awareness in case of non-insured farmers was radio/TV but still there was lack of optimum publicity about the schemes while insurance companies and AKC/VHLSEC were major source of awareness in case of insured farmers. Majority of the insured respondents had insured their cattle and buffaloes while insurance on goat farming and poultry business was found to be increasing as compared to cattle's. Disease was perceived as major risk by the farmers in both cases while timely treatment along with regular consultation of veterinary experts and sanitation measures was found to be most used risk mitigating strategies among the farmers.

Insured respondents were found well satisfied with the current techniques used for valuation of animal and the policy about subsidy provisioned by government but was found not satisfied with the process, requirements and the time taken by insurance companies for settlements of claims. Farmers perceived that claim settlement process was more complex as different documents authorized by different agencies need to be submitted. After binary logistic regression analysis, result showed that documentation procedure, farmers involvement in any type of organizations, farmers contact with extension personnel and knowledge on premium subsidy were some factors found affecting the participation of farmers in adoption of livestock insurance.

Majority of the non-insured farmers explained that lack of awareness about the available facilities and limited information about premium and subsidy schemes as major constraints hindering farmers in joining the livestock insurance programmes while complex documentation and delay in claim payments were other constraints found. Majority of the insured farmers suggested reducing premium subsidy and easing claim settlements process and more publicity about the premium subsidy as main factors to increase the livestock insurance while non-insured farmers suggested about creating awareness among the farmers about whole insurance procedures.

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