STATISTICS SUMMATIVE

QUESTION ONE

Since 70% of the respondents are the head of the family, there is a risk of non-response bias if the 'farmer' isn't the head of the family. Face to face interviews also bing in the element of exaggeration. Self-selection bias is a possibility since the sample list was from local authorities who could be biased for and against certain people. Due to the costs of the survey, sampling was clustered in villages which caused convenience bias since households were sampled (mostly) based on their location.

QUESTION TWO

The method used for sampling was multi stage stratified sampling; the households with similar characteristics were grouped together and more groups were formed within these groups. the stages were:

1. Counties were selected to represent the different African regions
2. Different districts were chosen to represent the diverse FAO classification of the agro-ecological zones and farming systems.
3. Households randomly selected from a list prepared by agricultural authorities.

QUESTION THREE

Two key questions that can be studied are:

1. Does the size of the farm affect the number of crops grown?
2. Does the size of the household affect the type of farming?

These questions will help in approaching the various households on how to cope with climate changes based on the various sizes of their land.

The statistical analysis plan I would use is:

1. Cluster the households based on the size of the land.
2. Cluster the households based on the farming method
3. Sample the various clusters based on the mix and number of crops grown.

The hypothesis would be:

Null – The size of the farm has no significance on crop(s) grown.

Alternate – The size of the farm determines the crop(s) grown.

Tests to be used:

1. Simple linear regression

This test is used to show the relationship between two variables; dependent and independent. The independent variable will be the size of the land while the observed variable (dependent variable) will be the number of crops.

2.Person correlation coefficient

These two tests will show the relationship between two continuous variables; the size of the farm and the number of crops grown

QUESTION FOUR

Interpreting the results (determining the significance):

1. P-value

If the P-value is less than alpha (0.05) then the alternate hypothesis will be accepted and the null hypothesis rejected. The P-value shows the level of significance between two variables through acceptance or rejection of the null hypothesis.

2.Pearson correlation coefficient, r

If r is greater than zero then it will be concluded that there is a relationship between the two variables, otherwise, null hypothesis will be accepted.