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# Factors Affecting Farmers' Participation in Agricultural Programme in Zululand District, Kwazulu Natal Province, South Africa

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**ABSTRACT** This paper examines factors affecting farmers' participation in agricultural projects in Zululand district, KwaZulu Natal Province, South Africa. Three municipalities were randomly selected from five and 30 farmers were randomly selected from each municipality to give a sample size of 90. Data were collected using structured questionnaire and analyzed using frequency count, percentages and probit regression model. The results show that majority of the farmers were above 60 years of age, had no formal education, belonged to male headed households, had farm sizes less than10 ha. Farmers were favourably disposed to participation, while unavailability of land, lack of funds and limited resources were major constraints against participation. Significant determinants of participation are attitude (t =3.041), effectiveness of Land Care (t = -2.111), age (t = 0.64), gender (t = -2.93), livestock enterprise (t= 2.408), crop enterprise (2.568) and income (t = -2.461).

## INTRODUCTION

The low performance of agriculture sector does not only threaten the livelihood but it also affects the production capacity of natural resources base, accelerates environmental degradation and fails to address poverty and malnutrition (Ashley and Maxwell 2011). In order to enhance the performance of agricultural sector, government in South Africa has introduced several programmes such as Comprehensive Agricultural Support Programme (CASP), Micro-agricultural Financial Institution of South Africa (MAFISA), rural development, food security, land care and Land Redistribution for Agricultural Development (LRAD). Empowerment and participation are two most important issues in agricultural development programs. Participation is critical, in order to come up with successful and accepted programs since they facilitate the development plans. Empowerment refers to process in which community gives or gets power from another. Participation as empowerment is an approach in which people hold complete power over and are in full control of a program. Participation refers to involvement of marginalized groups in development process, which intend to build peoples abilities to access and control of resources, benefits and opportunities towards self reliance and to better standard of living. Farmer's participation plays a vital role in economic development and in poverty alleviation. Without participation there would be no program, no development. Lack of participation in decision- making to implement agricultural policies can lead to failure in agricultural development. There are five types of farmer's participation which are: empowerment, partnership, interaction, consultation, informing, and manipulation. There are various reasons why active participation is very hard to achieve including people's lack of knowledge, confidence, capital, skills. Ignorance is considered as the main barrier to farmers' participation in agricultural projects. Farmers' participation in planning and decision- making, shortage of incentives to those who participate, and lack of capable organization were contributing factors to farmers' participation (Aref 2011).

According to Iqbal (2007), most agricultural projects fail because when projects are designed, farmers or local ethics, culture and socio-economic characteristics are not considered which lead to outside agents not being able to develop and recommend appropriate technologies that are compatible with the target group. Douglah (1997) also added that poor adoption and failure of agricultural projects are results of lack of participation of the target group in all stages of the projects. He said that people are not given chance to participate in all decisions that affects

their lives directly. Government officials and experts support the idea of participation in principles but at ground level there is no common agreement while Blay et al. (2008) found that involving target group or local knowledge has weaknesses such as solutions which are based on limited scientific understanding of processes, limited technical knowledge and dissemination of results may be limited to gender or specific socio-economic groups. Festo (2003) stated that the use of top- down approach is one of the major factors causing failure of agricultural projects and that approach builds on farmers' experience instead of promoting empowerment and building farmers capabilities. Hans-Dieter (2005) stated that participatory approach has became relevant and popular in such a way that researchers are no longer asking if participatory method should be used but rather when and how, and which type of method, in combination with traditional research tools. There are five types of participation in agricultural research: which are nominal, consultative, action- oriented, decision-making, and collegial participation. Six dimensions of participatory framework (project type, project approach, researcher's characteristics, researcher-stakeholder interaction, stakeholder characteristics, and stakeholder's benefits) were taken into consideration. It was revealed that one of the challenges in applying participatory research is that it is time consuming caused by number of dimensions considered and the resulting complexity. Participatory framework can help to identify strengths, opportunities and limitations of stakeholder involvement in research projects. It also helps in monitoring and evaluation of research project. Chandran and Chackacherry (2004) stated that farmers' participation in irrigation project in India was influenced by availability of irrigation water and location of land on the canal. Farmers who are far from irrigation water experience water scarcity and that has a negative impact on farmers' participation.

**Objective of the Study**

The main objective of this study was to determine factors that affect farmers' participation in agricultural projects in Zululand district, KwaZulu Natal Province, South Africa. Specific objectives include the identification of personal characteristics, determination of attitude, constraints and willingness to participate in agricultural programs. The study also explores the relationship between socio-economic characteristics of farmers and participation in agricultural programmes.

## METHODOLOGY

Zululand district is situated in the north of KwaZulu Natal province of South Africa. It is situated within the latitude of 28p / 19p 'S and longitude of 31p 25 'E with the altitude range from 70m above sea level to approximately 580m above sea level. The district is divided into 5 local municipalities which are: Nongoma, Ulundi, Abaqulusi, EDumbe, and uPhongolo. Zululand district is surrounded by Amajuba district to the north, Gert Sibande district to the north which is in Mpumalanga province, Kingdom of Swaziland to the north, UMkhanyakude district to the east, UMzinyathi district to the southwest, and UThungulu district to the south. The predominant occupation of the area is farming, particularly livestock and few are engaged in crop production which is caused by low rainfall. Climatic condition of Zululand is warm sub-tropical climate for most part of the year. Summer (November – February) temperature is hot, from 24-30 degrees Celsius, and winter temperature average 20 degrees Celsius. Winter is ideal and from March /April the temperature varies from 11degrees at night to around 30 degrees in the day. The population of the study included all farmers in Zululand District. Three (3) municipalities were randomly selected from five which included Abaqulusi, Nongoma and Ulundi municipality. Thirty (30) farmers were randomly selected from each municipality to give a sample size of ninety (90). Data was collected using structured questionnaire which had sections on socioeconomic characteristics, willingness to participate, attitudes and constraints to participation in agricultural programs. Data collected was sorted, coded, and analyzed using Statistical Package for Social Sciences (SPSS). Frequency count percentages were used to describe the data. The Probit regression model was used to determine factors affecting farmer participation in agricultural projects. In the probit model, the discrete dependent variable Y is a rough categorization of a continuous, but unobserved variable $Y^*$. If $Y^*$ could be directly observed, then standard regression methods would be used

(such as assuming that $Y^*$ is a linear function of some independent variables, for example:

$$Y^* = \beta_0 + \beta_1 X_{1i} + \ldots\ldots\ldots \beta_j X_{ji} + ui \quad \ldots\ldots\ldots\ldots\ldots (1)$$

In this study, $Y^*$ is the participation in agricultural programme which is used as a proxy for $Y^*$. The actual model specification is: participation in agricultural programme.

$\beta_0$ = constant

*ui* = error representing independent varibles not included in the model

The dependent variable Pi is a dichotomous variable which is 1 when a farmer participates in agricultural programme and 0 if otherwise. The explanatory variables are:

$X_1$ = Effectiveness of CASP (Effective=1, Not Effective=0),
$X_2$ = Effectiveness of MAFISA (Effective=1, Not Effective=0),
$X_3$ = Effectiveness of Food Security (Effective=1, Not Effective=0),
$X_4$ = Effectiveness of Land Care (Effective=1, Not Effective=0),
$X_5$ = Attitude (Likes to participate=1, otherwise=0)
$X_6$ = Constraints (Yes=1, No=0)
$X_7$ = Age in years,
$X_8$ = Household headship (male = 1, 0 = otherwise),
$X_9$ = Number of dependants,
$X_{10}$ Farming experience in years,
$X_{11}$ = Undertake livestock enterprise? (Yes = 1, No = 0),
$X_{13}$ = Undertake crop enterprise? (Yes = 1, No = 0),
$X_{14}$ =
$X_{15}$ = Annual income from project
$X_{16}$ = Is extension officer source of information? (Yes=1, Otherwise=0)

## RESULTS AND DISCUSSION

Table 1 shows age distribution of respondents in the study area. 47.40% were above 60 years of age and only (3.3%) of farmers were found to be less than 30 years of age. Kunene and Fossey (2006) also found similar results, whereby only 1.30% of respondents less than 30 years and 49.9% of respondents were above 50 years. However, Gareux (2003) stated that younger farmers tend to be more willing to participate and adopt than their older counterparts. Also, there are more men than women who were involved in farming activity. This shows that majority of people in Zululand districts still believes that agriculture is for male individuals and Women are expected to perform domestic activities in the household. Hence, they are not given the same opportunity as men to participate in agricultural Project. (Kunene and Fossey 2006) found similar results. Majority of the respondents were males. According to Table 1, 40.1% of respondents had no formal education. The finding agrees with Banmeke and Omoregbee (2009) who stated that majority of farmers have low literacy level.

The results on household head show that 65.60% belonged to male- headed households and (32.20%) were female- headed and only (1.1%) were child- headed. This finding agrees with Beyene (2008) who found that agricultural projects were mostly dominated by men. He stated that sex of the household head influences household participation since the male-headed households have more access to opportunities than female-headed households, hence male headed household participate more in agricultural projects. Similarly, 88% of the respondents had household size of at least 6 persons. About 42.3% of the respondents had farm sizes of less than 10 ha and only (21%) represent farm sizes above 20ha; while about 60% had farming experience of above 10 years.

It was found that 40.6% of respondents generated income less than R5000.00 and only 4.0% generated income above R40 000. This table implies that there is very weak earning power or income in the study area. Similarly, 56.7% of respondents had other sources of income from social grants, salaries (23.3%) and 18.9% from other business which shows those who are also engaged in non- agricultural businesses. Mpandeli et al. (2009) also found that most farmers households obtain income from social welfare (social grant), and very few households who have income earning enterprises. It was found that 65.6% of respondent have access to extension officers and only 10% use radio and internet as their sources of information. The possible reason is that most of them are uneducated as a result they cannot read or access internet while they can interact with extension officers using their own languages. The results are consistent with Opara (2008) who found that majority of the farmers (88.2%) preferred the extension agent to the other sources of information. However, Mohammed et al. (2005), stated that farmers' main sources of information vary according to enterprise type. For their production decisions, for example, poultry and dairy farmer respondents depend largely on information provided by veterinarians while horticulture and crop farmers rely mainly on the advice of extension agents.

In terms of respondents' participation in agricultural programs, 75.6% of respondents participate in food security programs. This implies that majority of respondents were more interested in eliminating hunger and poverty and only 5.6% participated in CASP. The reason for low participation in CASP may be due to the bureaucratic nature of the program. Also, 84.4% of respondents do not participate in MAFISA. It may due to the fact that emerging farmers don't have enough land which can be used as security when you get a loan from MAFISA. From Table 1, 97.8% of respondents are willing to participate in future agricultural projects. This implies that most farmers are now aware of benefits that they can get by participating in agricultural projects such as capacity building, exposure to new techniques and empowerment which may help them increase their production and eliminates hunger and poverty. Gujit and Shah (1998) agrees with both collaborative and partnership on a view of participation as a linear continuum reaching from projects with a low level of participation to projects with high degree of participation, implying that it is possible and necessary to move across this continuum to the most intense form of participation.

Table 2 shows farmers' attitudes towards agricultural projects. 92.2% of respondents agree that participation in projects will enhance food security. This may be due to the fact that most of them are participating in food security projects. Also, 53.3% of respondents agree and strongly that participation improves adoption status. Ajayi and Ajala (2008) also found the similar results that those farmers who participated in extension activities showed high rate of adoption. It was found that (84.4 %) of respondents agreed that participation will enhance access to land, 96.6% indicated access to extension services.

Table 3 shows constraints to farmers' participation in agricultural projects. The major constraints to participation are unavailability of land, lack of resources, and lack of funds which were 81.1%, 92.2%, and 93.3% respectively. The inequality and injustice of the apartheid era on land ownership could be responsible for this trend of results. Closely related to this is the inaccessibility to market and the monopoly of market and value-chain processes that have been operational since apartheid regime. Lahiff (2007) stated

**Table 1: Personal characteristics of farmers**

| *Variables* | *Frequency* | *Percentages* |
|---|---|---|
| *Age* | | |
| Less than 30 | 43 | 47.40 |
| 30 – 40 | 16 | 17.7 |
| 41-50 | 14 | 15.4 |
| Above 50 | 17 | 18.80 |
| *Gender* | | |
| Male | 54 | 60 |
| Female | 36 | 40 |
| *Educational Level* | | |
| None | 8 | 40.1 |
| Primary completed | 9 | 10.0 |
| Primary incomplete | 16 | 17.0 |
| Secondary incomplete | 17 | 18.9 |
| Secondary complete | 5 | 5.6 |
| High school | 16 | 4.4 |
| Tertiary | 19 | 4.0 |
| *Household Size* | | |
| Less than 3 | 1 | 1.1 |
| Between 3-6 | 28 | 31.1 |
| Above 6 | 61 | 67.8 |
| *Number of Dependant* | | |
| Less than 3 people | 5 | 5.6 |
| Between 3-6 people | 42 | 46.7 |
| Above 6 people | 43 | 47.8 |
| *Farm Size* | | |
| Less than 10 | 38 | 42.4 |
| Between 11-20 | 33 | 36.6 |
| Above 20 | 19 | 21 |
| *Farming Experience* | | |
| Less than 6 | 20 | 22.2 |
| Between 6-10 | 16 | 17.8 |
| Above 10 | 54 | 59.5 |
| *Income* | | |
| <R5000 | 6 | 40.6 |
| Between R5000-R10000 | 25 | 30.4 |
| Between R11000-R15000 | 14 | 14.6 |
| Between R16000-R20 000 | 10 | 10.4 |
| >R20 000 | 35 | 4.0 |
| *Other Sources of Income* | | |
| Social grant | 51 | 56.7 |
| Salaries | 21 | 23.3 |
| Other business | 17 | 18.9 |
| *Information Sources* | | |
| Extension officers | 60 | 66.67 |
| Newspapers | 12 | 13.30 |
| Internet | 9 | 10.00 |
| Radio | 9 | 10.00 |
| *Willingness to Participate* | | |
| Yes | 88 | 97.80 |
| No | 2 | 2.22 |
| *Participation in Programs* | | |
| MAFISA | 14(15.6) | 76(84.4) |
| CASP | 5(5.6) | 85(94.4) |
| Rural Development | 21(23.3) | 69(76.7) |
| Food Security | 68(75.6) | 22(24.4) |
| Land Care | 14(15.6) | 76(84.4) |
| Land Reform for Agricultural Development | 18(19.10) | 72(79.10) |

**Table 2: Famers' attitudes towards participation in agricultural projects**

| *Attitudes of farmers towards agricultural projects* | *Strongly agree* | *Agree* | *Undecided* | *Disagree* | *Strongly disagree* |
|---|---|---|---|---|---|
| Participation in projects enhances household food security | 45(50) | 38 (42.2) | 4 (4.4) | 3 (3.3) | 0(0) |
| Participation in projects improves adoption status | 37 (41.1) | 47 (52.2) | 5 (5.6) | 1 (1.1) | 0(0) |
| Participation in projects enhances access to land | 31 (34.4) | 54 (60.0) | 2 (2.2) | 3 (3.3) | 0(0) |
| Access to extension services | 66 (73.3) | 21 (23.3) | 2 (2.2) | 1 (1.1) | 0(0) |
| Capacity building | 40 (44.4) | 42 (46.7) | 7 (7.8) | 1 (1.1) | 0(0) |
| Access to market will improve | 16 (17.8) | 54 (60.0) | 18 (2.0) | 2 (2.2) | 0(0) |
| Participation improves investment in agriculture | 14 (15.6) | 53 (58.9) | 21 (23.3) | 2 (2.2) | 0(0) |
| Participation attracts investors | 12 (13.3) | 53 (58.9) | 23 (25.6) | 2 (2.2) | 0(0) |
| Participation enhance job creation | 50 (55.6) | 34 (37.8) | 5 (5.6) | 1 (1.1) | 0(0) |
| Participation increases diversification of livelihood | 19 (21.1) | 57 (63.3) | 13 (14.4) | 1 (1.1) | 0(0) |
| Political reasons influence participation in projects | 8 (8.9) | 30 (33.3) | 36 (40) | 16 (17.8) | 0(0) |
| Projects are bureaucratic | 8 (8.9) | 34 (37.8) | 38 (42.2) | 10 (11.1) | 0(0) |
| Projects are people oriented | 8 (8.9) | 62 (68.9) | 14 (15.6) | 6 (6.7) | 0(0) |
| Projects mobilization strategy encourages participation | 63 (7.0) | 24 (26.7) | 2 (2.2) | 1 (1.1) | 0(0) |
| Participation enhances projects sustainability | 46 (51.1) | 36 (40) | 7 (7.8) | 1 (1.1) | 0(0) |
| Participation enhances agricultural development | 18 (20) | 57 (63.3) | 14 (15.6) | 1 (1.1) | 0(0) |
| Participation determines projects impacts | 20 (22.2) | 60 (66.7) | 9 (1.0) | 1 (1.1) | 0(0) |
| Awareness increases government popularity | 16 (17.8) | 60 (66.7) | 13 (14.4) | 1 (1.1) | 0(0) |

**Table 3: Constraints to farmer's participation in agricultural programmes**

| *Constraints* | *High* | *Moderate* | *Low* |
|---|---|---|---|
| Unavailability of land | 73 (81.1) | 15 (16.7) | 2 (2.2) |
| Lack of fund | 84 (93.3) | 5 (5.6) | 1 (1.1) |
| Lack of resources | 83 (92.2) | 6 (6.7) | 1 (1.1) |
| Market inaccesibility | 19 (21.1) | 68 (75.6) | 3 (3.3) |
| Lack of technical knowledge | 37 (41.1) | 46 (51.1) | 7 (7.8) |
| High inputs cost | 63 (70) | 27 (30) | 0 (0) |
| Lack of commitment by extension agent | 22 (24.4) | 65 (72.2) | 3 (3.3) |
| Lack of leadership | 29 (32.2) | 58 (64.4) | 3 (3.3) |
| Lack of sense of ownership | 30 (33.3) | 58 (64.4) | 2 (2.2) |

**Table 4: Probit parameters estimates of socio-economic characteristics affecting farmer's participation in agricultural programmes**

| *Parameters* | *Estimates* | *Std. error* | *Z* | *Sig.* |
|---|---|---|---|---|
| Attitude | 0.011 | .004 | 3.041 | 0.002 |
| Constraints | -0.007 | .012 | -0.576 | 0.565 |
| Effect of MAFISA | -.005 | .004 | -1.366 | .172 |
| Effect OF CASP | .000 | .005 | .060 | .952 |
| Effect RUDEVPT | -.002 | .003 | -.774 | .439 |
| Effect Foodsec | .004 | .003 | 1.644 | .100 |
| Effect LAND CARE | -.008 | .004 | -2.111 | .035 |
| Effect LRAD | .005 | .004 | 1.339 | .181 |
| Age | .007 | .004 | 1.850 | .064 |
| Gender | -.222 | .075 | -2.963 | .003 |
| Educational level | -.005 | .019 | -.295 | .768 |
| Household head | -.314 | .067 | -4.710 | .000 |
| Household size | -.024 | .061 | -1.538 | .124 |
| Farm size | .000 | .001 | .690 | .490 |
| No: of dependents | .018 | .021 | .844 | .399 |
| Farming experience | -.005 | .005 | -.889 | .374 |
| Livestock's enterprise | .072 | .030 | 2.408 | .016 |
| Crop enterprise | .000 | .000 | 2.568 | .077 |
| Income from farming | .000 | .000 | -.644 | .520 |
| Other source of income | -.097 | .039 | -2.461 | .014 |
| Sources of information | -.022 | .020 | -1.126 | .260 |
| Intercept | -.259 | .449 | -.577 | .564 |
| Chi-square | 2328.613 | | | |
| DF | 62 | | | |
| p | .000 | | | |

that everyone did benefit from land reform program. This result also supports Mwangwela and Düvel (2010) who stated that inadequate resources by services providers are one of the barriers to participation in agricultural projects. Mpandeli et al. (2009) also found that lack of resources is one of the major constraints facing farming community.

Table 4 shows determinants of farmers' participation in agricultural programmes. The results from the Probit model in Table 4 showed that the coefficients for 7 variables were significant. These are attitude (t =3.041), effectiveness of land care (t = -2.111), age (t = 0.64), gender (t = -2.93), livestock enterprise (t= 2.408), crop enterprise (2.568) and income (t = -2.461). The sign for each coefficient is consistent with the expectation; that is, the probability of farmers' participation in agricultural programmes increases if

programmes effectiveness increases, favorable disposition by farmers to the programmes, farming household are male-headed, engage in livestock enterprise, increase income variety used for substitution, and long farming experience. The inverse relationship explains the effect of including all male-headed and female headed households in the programmes.

## CONCLUSION

Participation in agricultural projects means empowering farmers and giving them responsibility so that they feel that they own the projects, which helps in ensuring that the projects are compatible with the local environment and do not have conflicts with the target group. Majority of the farmers are above 60 years of age, have had no formal education, belong to male-headed households, had household size of at least 6 persons, and farm sizes less than 10 ha. Farmers were favourably disposed to participation in agricultural programs, while unavailability of land, lack of funds and limited resources were found to be the major constraints that reduce farmer participation in agricultural projects. The higher the age, educational level of the farmers and increase in the number of male-headed households in the projects, the higher the participation in the projects.

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