

Factors Affecting Farmers Participation in Agricultural Projects in Ngaka Modiri Molema District North West Province, South Africa

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ABSTRACT The survey examines factors affecting farmer participation in agricultural projects in Ngaka Modiri Molema district in North West province. A random sampling technique was used in selecting 20 farmers from each of 6 selected villages, which gave a sample size of 120 farmers. Data were gathered with the use of questionnaire administered as an interview schedule, which were subjected to analysis using SPSS. The results show that majority (60.3%) of farmers are above 55 years, 51.6% were males, 54.2% had formal education up to High school level, and 97% were willing to participate in agricultural projects. Significant determinants of participation in agricultural projects household size ($t = 5.023$), effectiveness of rural development programme ($t = 2.00$), constraints ($t = -1.90$) and effectiveness of LRAD ($t = 1.80$).

INTRODUCTION

Agriculture is an important sector in the economic development and poverty alleviation drive of many countries such that its development requires technologies, organizational and institution innovations. Farmers' participation is an important factor for sustainable agriculture in rural areas such as North West province. Agricultural extension in many countries is being reoriented to provide more demand-based and sustainable services, taking account of the diversity, perceptions, knowledge and resources of users. Kumba (2003) emphasizes that in order for local participation in development, efforts are rendered effectively, local people should have access to decentralized institutions at local level that will honour their knowledge and their priorities and further emphasizes that local priorities should be addressed as soon as possible to ensure that locals do not lose faith in the capacity of local institutions. Ayode (2010) reported that participation is contingent on benefits derived from the project.

Bahta and Bauer (2007) stress that membership in farmers group influences participation in agricultural projects due to the fact that there is increasing interest in farmers' organization as an effective approach to farmer participation research (FPR). Meinzen-Dick (1997) reported that farmer participation in irrigation project in Mexico was dependent on trust between agency and

farmers as well as clear definition of roles and responsibilities. According to Salam et al. (2004), farmers' participation in forestry projects was due to participants' knowledge, skills, claims and assurance of long-term rights so that they are assured of receiving the benefits of the protected and improved forest resources. According to Barret (2008), the most important factor in stimulating environmental participation would be providing opportunities to increase income, utilize and benefit from the forest.

The main objective of this study is to determine the factors that affect farmers' participation in agricultural programmes/projects in North West Province (NMMD) of South Africa. The specific objectives were to identify demographic characteristics, determine attitude, constraints, and ascertain willingness to participate in agricultural programmes. The significant relationship between socio-economic characteristics of farmers and participation in agricultural programmes was also explored in the paper.

METHODOLOGY

The study was conducted between June and August 2011 in North West province. Ngaka Modiri Molema district municipality (NMMDM) is situated in the far north-western part of South Africa, which is, interestingly, situated in the far southern part of Africa. The municipality is adjacent to the Northwest Province and shares

borders with Botswana. The North West province has four district municipalities, namely Central, Bojanala- Platinum, Southern and Bophirima. The Ngaka Modiri Molema District consists mainly of local districts of the former Bophuthatswana homeland areas (which include Mafikeng, Ramotshere Moilwa, Tswaing, Ditsobotla and Ratlou local municipality). Mafikeng is a semi-arid area. Temperatures range from 17° to 31 °C (62° to 88 °F) in the summer and from 3° to 21 °C (37° to 70 °F) in the winter. Annual rainfall totals about 360 mm (about 14 in), with almost all of it falling during the summer months, between October and April. And the main source of income in North West is agriculture. The population of the study is all farmers in the Ngaka Modiri Molema district municipality of the North West province of South Africa. Simple random sampling technique was used to select 20 farmers from each of the six villages selected to give a sample size of 120. A structured questionnaire was designed and used to collect data with sections on demographic information, while other sections on the effectiveness of the programmes, willingness to participate, attitudes of farmers towards agricultural projects and constraints facing farmers to participate in agricultural projects. A split half technique was used to test the reliability of the instrument and has 0.85 reliability coefficient. Frequency counts and percentages were used to describe the data and a Probit regression model was used to determine factors affecting farmer participation in agricultural projects.

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 categorisation 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:

$$Y^* = \beta_1 X_{1i} + \dots \beta_j X_{ji} + u_i \dots \dots \dots (1)$$

In this study, Y^* is the participation in agricultural programme which is used as a proxy for Y^*

RESULTS AND DISCUSSION

Figure 1 shows the personal characteristics of farmers. Majority of farmers are older than 55 years and constitute 60.3 % of the respondents.

Also, 51.6% were males while 48.4 % were females. Oladele (2011) noted that it was a wide belief that males are dominating agricultural sector as compared to female. Although females are not left out, females are more hands on in harvesting and processing. Figure 1 further shows that majority (54.2%) of the respondents had formal education up to High school level, 15.8% had no formal education while 27.5 had primary school level of education, Oni et al. (2005) reported that literate farmers are likely to accept new innovation than illiterate farmers thereby enhancing their productivity and greater farms' returns. The family size of respondents ranging between 1 and 3 was 29%, 65% ranged from 4 to 6 and the remaining 6% had above 6 persons as family size. Majority of households are headed by male of about 60 %, female headed is 21% and the remaining 15% is headed by children. This could be attributed to the menace of HIV/AIDS. The study area according to Ladzani (2005) is rated as the fifth most endemic province of nine provinces in South Africa.

The most prominent information source to the respondents as shown in Figure 1 is radio (49%). Opara (2011) noted that knowledge and information are basic ingredients for increased agricultural production and productivity. Information is a critical resource in the operation and management of the agricultural enterprise. Effective agricultural information delivery requires recognition of the needs of the farmers and the determination of how best to provide them with the information they need. Access to the right information at the right time in the right format and from the right source may shift the balance between success and failure of the farmer. The figure also indicates that other sources of information that respondents used were extension officers (39.09%), television (10.0%), and newspaper (7.5%).

The results show that 56.6% of respondents had farm size of less than 50 ha, 5.8% had between 50-100 ha, and 37.6% had between 101-250 ha. Kinsey (1999) reported that the farm size had no effect to greater returns on production. Rosset (2000) reports that small farms produce far more per acre or hectare than large farms. One reason for the low levels of production on large farms is that they tend to be monocultures. Majority of respondents have farming experience of less than five years (50.4%) The figure

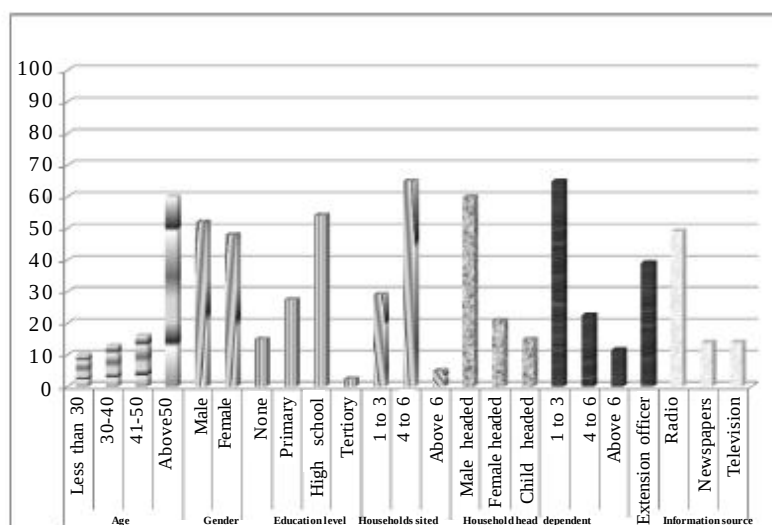


Fig. 1. Personal characteristics of respondents

also indicates that 35% of participants have 6-10 years in farming, 7% of them have 11-15 and only 7.4% are more experienced/ have above 15 in farming. Oladele (2011) reported that experience in farming is important and it comes with years of practice. Thus for the emerging farmers to develop they should practice agriculture in real life as practice is postulated to make perfect.

The results shown in Figure 2 indicate that 37.5% had income of less than 10 000, 20.6% had income of 11 000-30 000, 14.9% had income of 31 000 -50 000 and 27% had an income of above 50 000, other source of income is from social grants, 45% of the respondents derive their income from social grants and majority (50%) of them have other source of income. This shows that people are resorting to agriculture as an alternative to employment and to ensure food security. The results show that the common farming enterprises in the study area were vegetables (18.3%), followed by piggyery (14.3%), cattle (13.3%), maize (12.6%) then sheep (12.5%), poultry (10.8), goat (10%), and sunflower (8.3%), (Fig. 2). The findings of Montshwe (2008) identified livestock farming as the enterprise with the most likely chance of improving household food security and addressing poverty alleviation in the rural areas of South Africa. However, very few small-scale cattle farmers participate actively in mainstream cattle markets. The figure further shows that 97 % of farmers were willing to participate in agricultural projects and also shows that only

3% were not willing. Farmers' participation is considered necessary to get community support for agricultural development projects (Cole 2007).

The most prominent attitudinal statements are participation in projects improves adoption status (60.8%), participation enhances access to extension services (59%), participation enhances capacity building (64.2), and participation enhances agricultural development (59.2%). Ozowa (1995) noted that extension is a type of education which is functional rather than formal whose main task is to convey information in a meaningful form to farmers. Table 1 indicates that 68% of farmers showed positive attitudes towards participation in projects to enhance food security; hence Letsema la mantshatlala programme where food security is ensured by providing inputs within unemployed families. About 42% agreed that participation will enhance access to land. As land is the first requirement to meet when applying for agricultural projects. Cohen (1996) noted that obstacles to community participation are identified in the attitudes and practices of the personnel of development agencies and field staff and in the community itself. The table also indicates that 52.5% of farmers agree that participation in projects are a prerequisite for other project-related activities, 40.8% indicated that project mobilisation strategy encourages farmers participation and 57.5% also indicate that farmers agree that participation

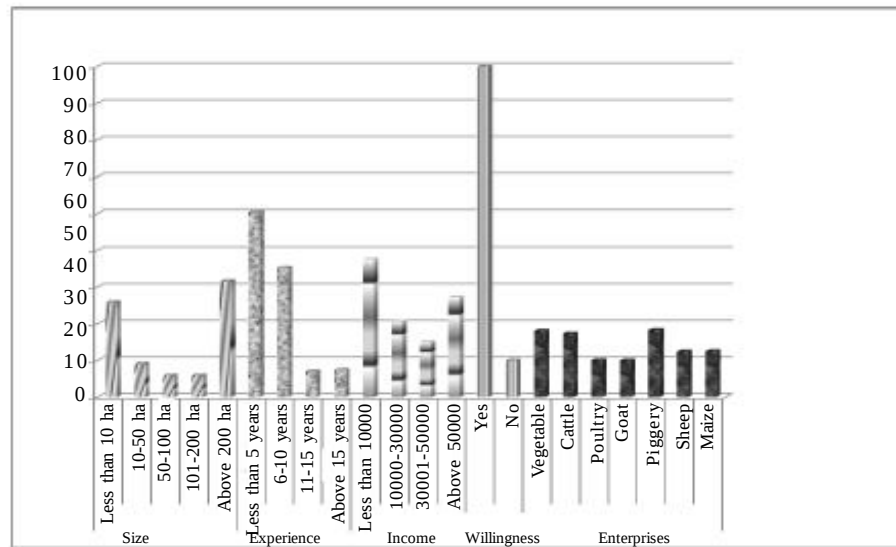


Fig. 2. Farming features among respondents

enhance project sustainability and 59.2% of farmers agree that participation enhance agricultural development. The results indicates that the majority of farmers; 54.2% agree that participation determining impact while 6.7% of farmers disagree that awareness increase government popularity.

In Table 2, the most important constraint is lack of market access (68%), which is followed by land unavailability (75%), lack of resources (65), lack of technical knowledge(60%) and high inputs costs (60.8%). These are essential support services needed by farmers and new entrants to farming. However, farmers indicated that

Table 1: Attitude of farmers on participation towards agricultural projects

Attitudinal statements	SA	A	U	D	SD
Participation in projects enhance households foods security	2(1.7)	68(56.7)	1(0.8)	45(37.5)	0 (0.0)
Participation in projects improve adoption status	35(29.2)	73(60.8)	73(60.8)	7 (5.8)	0 (0.0)
Participation in project will enhance access to land	6 (5.0)	42(35.0)	27(22.5)	25(20.8)	19(15.8)
Participation enhances access to extension services	26(21.7)	71(59.2)	9 (7.5)	13(10.8)	0 (0.0)
Participation enhances capacity building	19(15.8)	73(60.8)	14(11.7)	9 (7.5)	2 (1.7)
Participation enhances access to market	39(32.5)	58(48.3)	9 (7.5)	2 (1.7)	11 (9)
Participation in improvement investments in agriculture	30(25.0)	57(47.5)	30(25.0)	2 (1.7)	0 (0.0)
Participation attracts investors	39(32.5)	60(50.0)	15(12.5)	3 (2.5)	2 (1.7)
Participation enhance job creation	24(20.0)	65(54.2)	13(10.8)	15(12.5)	2 (1.7)
Participation increases diversification of livelihood	36(30.0)	56(46.7)	18(15.0)	5 (4.2)	4 (3.3)
Participation in projects political	35(29.2)	56(46.7)	7 (5.8)	16(13.3)	5 (4.2)
Projects are bureaucratic	12(10.0)	77(64.2)	18(15.0)	12(10)	0 (0.0)
Participation in project are perquisite for some other projects related activities	29(24.2)	63(52.5)	24(20)	3 (2.5)	0 (0.0)
Project mobilization strategy encourages farmer participation	35(29.2)	49(40.8)	10 (8.3)	6 (5.0)	19(15.8)
Participation enhances agricultural sustainability	14(11.7)	69(57.5)	36(30)	0 (0.0)	0 (0.0)
Participation enhances agricultural development	11 (9.2)	71(59.2)	16(13.3)	16(13.3)	5 (4.2)
Participation determine project impact	8 (6.7)	65(54.2)	24(20.0)	8 (6.7)	14(11.7)
Awareness increase government popularity	42(35.0)	31(25.8)	38(31.7)	8 (6.7)	0 (0.0)

lack of sense of ownership (50%) is the least severe constraint. Moagi and Oladele (2012) reported that farmers in Waterberg District, Limpopo Province, South Africa have high information needs particularly in the areas of agricultural inputs, production, market and supply chain and, credit.

Table2: Constraints to participation in agricultural projects

Constraints	High	Moderate	Low
Land unavailability	13(10.8)	90(75.0)	15(11.7)
Lack of funds	22(18.3)	62(51.7)	35(29.2)
Lack of resources	28(23.3)	78(65.0)	13(10.8)
Lack of market access	82(68.5)	3 (10.8)	35(29.4)
Lack of technical knowledge	13(11.1)	72(60.0)	35(29.20)
High inputs costs	36(30.0)	73(60.8)	10 (8.3)
Lack of commitment by extension agents	9 (7.5)	55(45.8)	55(45.8)
Lack of leadership skills	32(26.7)	85(70.8)	2 (1.7)
Lack of sense of ownership	1 (0.8)	53(44.2)	60(50.0)

Table 3: Determinants of farmers' participation in agricultural programmes

Parameter	Estimate	Std. error	z	Sig
Age	-0.003	0.002	-1.414	0.157
Gender	-0.089	0.006	-1.339	0.181
Education level	-0.18	0.022	-0.793	0.428
Farm size	0.000	0.000	-1.433	0.152
Household size	0.121	0.024	5.028	0.000
Household headship	0.062	0.035	1.787	0.618
Number of dependents	-0.101	0.023	-4.338	0.61
Farming experience	0.006	0.000	1.177	0.117
Income	0.000	0.000	-16.009	0.335
Information sources	0.000	0.015	-0.498	0.272
Effectiveness of MAFISA	-0.028	0.003	-1.871	0.427
Effectiveness of CASP	0.004	0.006	1.566	0.072
Effectiveness of rural development	-0.006	0.003	-2.000	0.004
Effectiveness of food security	0.004	0.004	1.098	0.54
Effectiveness of land care	0.003	0.004	0.795	0.427
Effectiveness of LRAD	0.008	0.004	1.797	0.072
Attitude	-0.001	0.005	-0.134	0.894
Constraints	-0.027	0.014	-1.903	0.057
Intercept	-0.198	0.402	-0.492	0.623
Person Goodness-11	73.82			
of fit-Chi-square				
Dif	98			
Sig	0.000			

Determinants of Farmers' Participation in Agricultural Programmes

The results from the Probit model in Table 3 show that the coefficients for 4 variables were significant, these are household size ($t = 5.023$), effectiveness of rural development programme ($t = 2.00$), constraints ($t = -1.90$) and effectiveness of LRAD ($t = 1.80$). The sign for each coefficient is consistent with the expectation; that is, the probability of farmers' participation in agricultural programme increases if household size and programme effectiveness increases and constraints reduces. Kgosiemang and Oladele (2012) found similar results among farmers in Mkhondo Municipality of Mpumalanga Province, South Africa. Also, Frito et al. (2006) found similar results in the study on factors influencing farmers' participation in forestry management programmes in Haiti.

CONCLUSION

Participation in agricultural projects means putting responsibility in the hands of farmers to determine agricultural programmes which can make services more responsive to the local conditions, accountable, effective and sustainable. To realise the benefits, the role of the public sector has to be refined to permit multiple approaches which account for user diversity, and to develop partnership with farmer organisations, NGOs and the private sector for service delivery. The major determinants of farmers' participation in agricultural programmes are household size, effectiveness of rural development programme, constraints and effectiveness of LRAD. The top-down approach practiced in the department contributes a lot in participation or non-participation of farmers in the projects as major stakeholders or farmers are only involved in the later stages of all the programmes. Unavailability of funds, natural and physical capital reduces farmer participation within the agricultural projects.

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