

**A COMPARISON OF PROJECT PARTICIPANTS AND EXTENSION OFFICERS' PERCEPTION REGARDING KNOWLEDGE OF PRODUCTION IN AGRICULTURAL PROJECTS IN THE NORTH WEST PROVINCE, SOUTH AFRICA**

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**ABSTRACT**

*The study examined the perception and knowledge of project participants and extension officers about production knowledge in agricultural projects. The objective of the study was to compare the perception and knowledge of project participants and extension officers regarding production knowledge in agricultural projects before and at interview. The questionnaire was designed to collect data, in which structured and unstructured questions were used. To ensure a good flow of ideas, the questionnaire was divided into distinct sections. Data was captured and analysed by the Department of Statistics of the University of Pretoria. The data was collected by means of personal interviews with a total of 129 project participants and 75 extension officers. Knowledge of both respondent categories was assessed in terms of participants' knowledge about the commodities to be produced for a particular area before production, and at interview. Knowledge assessment was based on the production status of the commodity, special design requirements, special machines and equipment requirements, special transport requirements, quality assurance requirements, labour requirements, and time devoted on the produce. The major findings were as follows: (1) Project participants did not have knowledge at the start of their project, but had acquired knowledge by the time of interviews and there was a clear indication of a need for structured training at the project level.*

**Keywords:** Projects, Production, Knowledge, Perception, Project Participants, Extension Officers.

**1. INTRODUCTION**

Farmers account for the greater part of the population of any developing country such as South Africa. Obidike (2011) citing (CGIAR, 1995) pointed out that Governments of developing countries have a major responsibility of ensuring that there is adequate rural development in their various communities and local governments which would lead to effective and efficient agricultural systems that will not only supply food and animal protein but also foster the utilization of natural resources in a sustainable manner. Against this background, information and knowledge are very vital in agricultural development of any community and where they are poorly disseminated as a result of certain constraints, the community's agricultural development becomes highly impeded (Obidike 2011). Therefore, this study was designed to determine and compare the perception of project participants and extension officers regarding knowledge of production of commodities before commencement

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of production and at interview and also to assess their level of knowledge and ability to manage projects.

The lack of information support from the institutional sources according to Demiryurek, Erdem, Ceyhen, Atasever & Ysal (2008) results in the development of personal information sources to exchange information and diffuse technology among the farmers themselves. The study provides a deep understanding of the perception of project participants and extension officers regarding knowledge of production in their projects before and at interview, access to and use of agricultural knowledge and information in their projects, which necessitates a need for demand-led and client-based knowledge and information services in order to meet the disparate farmers' needs (Lwoga, Stilwell & Ngubane. 2011).

Blait (1996) cited by Obidike (2011) pointed out that the least expensive input for improved rural agricultural development is adequate access to knowledge and information in areas of new agricultural technologies, early warning systems (drought, pests, diseases etc), improved seedlings, fertilizer, credit, market prices etc. When the rural farmers lack access to knowledge and information that would help them achieve maximum agricultural yield, they are not only grope in the dark but are driven to the urban centres in search of formal employment, as the only option for survival Obidike (2011).

For a project to function, Sparrius (2000:267-293) states that it should have goals, a committed team and be viable, it should also satisfy customer requirements on specification or have an impact on customers. The management of agricultural development projects is important to their success (Hart *et al.*, 2005:104). Project participants, the community, stakeholders and extension officers play an essential role in the success of the project. Project data should be up-to-date and recorded correctly through setting up a knowledge centre (Bruce & Langdon, 2007:76) so that everybody might have easy access to key project information whenever they need it.

The production knowledge of an individual was assessed by looking at factors that were considered when the project was selected and when planning the project commodities. The following scales were used: 1 = No knowledge, 2 = Some knowledge, 3 = Average knowledge, 4 = Above average knowledge and 5 = Excellent knowledge for project planning, with seven factors being investigated (i) “before production” and (ii) “at interview”.

## **2. OBJECTIVES**

In general, the objective of the study was to compare the perception and knowledge of project participants and extension officers regarding production knowledge in agricultural projects before production and at interview. Specific objectives are:

- (1) To determine and compare the perception of production knowledge of the project participants in projects as perceived by project participants and extension officers before production and at interview.
- (2) To compare the perception of knowledge of managing the project by the project participants as perceived by project participants and extension officers before production and at interview.
- (3) To compare the perception of level of production knowledge of the project participants in projects as perceived by project participants and extension officers at the beginning of the project.

### 3. RESEARCH METHODOLOGY

- Orientation and planning -Provincial statistical figures were extracted from Provincial and Districts reports. A list of projects, their addresses and location were obtained from Local Agricultural Development Centres (LADC). Reconnaissance survey was done in all districts to check the status of projects before the actual commencement of an in-depth survey. Field staff was consulted on various aspects of the survey.
- Information source -Information on project location, size, number of participants and gender was obtained from LADC, District Office and Head Office (Mmabatho). Information on potential of the areas, soil types, livestock types, etc., was obtained from the Scientific Technical Support Services (STSS) in Potchefstroom.
- Questionnaire design - The questionnaire was designed according to the problem conceptualisation framework method as design by Düvel (1995:38-43).
- Type of questions - A combination of structured (closed questions) and unstructured (open-ended questions) were used.
- Sample size - Stratified random sampling was used. The survey was done on twenty five percent of the total number of projects submitted by the districts. The 25 percent covered diverse projects established from different locations, from groups to individual, from communal setup to private land, from dormant to fully fledged functional projects
- Interview procedure - In an effort to limit the “I don’t know”, “I’m not sure”, “That’s too private”, the importance of the respondent’s information was emphasised during the discussions. The flow of discussion was structured in such a way that the interview becomes interesting. Personal or sensitive questions like income were asked towards the end of the interview.
- Data analysis - Data were entered into the Statistical Package for the Social Sciences (SPSS) version 19.0 and frequencies were run for each survey item by the department of statistics of the University of Pretoria. The following statistical tests were done:
  - (i) Pearson Chi-Square test.
  - (ii) t-test for Equality of Means.

## 4 FINDINGS

### 4.1 Knowledge of managing a project

#### 4.1.1 Project participants and extension officers’ knowledge in successfully managing the projects

A project, like any other business, must be managed properly so that it delivers the intended production. The knowledge of a farmer or project participant, and the extension officer, in successfully managing a project is essential. The scale which was used to assess the knowledge of the respondents ranged from very low to very high knowledge. A total of 41% of project participants (Table 1) reported an average knowledge, while 35% indicated a high knowledge in managing projects. Only 15% of project participants and 10% of extension officers indicated a very high knowledge. The study reveals that 59% of extension officers indicated a high knowledge and 21% an average knowledge in managing projects. There is a significant difference ( $\chi^2 = 11.441$ ,  $p = 0.019$ ) between project participants (41%) and extension officers (22%) under the category of “average”, as well as for high knowledge (project participant’s 35% and extension officer respondents 59%). Management of the project is the responsibility of the project participants, with extension officers providing technical and other support.

**Table 1:** The perception of project participants’ and extension officer respondents’ knowledge in successfully managing projects

The assessment of knowledge categories with regard to successfully managing the projects	Respondent categories		Total
	Project Participants	Extension officers	
1. Very low knowledge (n) (%)	3 2.5%	2 2.9%	5 2.6%
2. Low knowledge (n) (%)	8 6.6%	4 5.8%	12 6.3%
3. Average knowledge (n) (%)	50 41.0%	15 21.7%	65 34.0%
4. High knowledge (n) (%)	43 35.2%	41 59.4%	84 44.0%
5. Very high knowledge (n) (%)	18 14.8%	7 10.1%	25 13.1%
Total (N) (%)	122 100.0%	69 100.0%	191 100.0%

$\chi^2 = 11.441$ ;  $p = 0.019$

#### 4.2 Level of knowledge at the beginning of the project

##### 4.2.1 The level of knowledge at the beginning of the project as perceived by project participants and extension officer respondents

The level of knowledge of respondents (Table 2) at the beginning of the project varied significantly at 5% significant level according to the Pearson Chi-Square test ( $\chi^2=39.475$ ;  $p< 0.0001$ ). A total of 34% of project participants and 24 % of extension officers indicated a low knowledge level, while 38% of extension officers and only 11% of project participants indicated a high knowledge level at the beginning of the project. The fact that 49 % of all respondents indicated a low and very low level of knowledge is alarming and needs urgent attention. Only 14 % of project participants, against 54 % of extension officers, indicated a high to even very high level of knowledge at the beginning of the project. These findings again emphasise the need for: (a) the training of project participants before the project starts, and (b) an increase in the number of training days.

**Table 2:** The level of knowledge at the beginning of the project as perceived by project participants and extension officer respondents

The respondents' level of knowledge at the beginning of the project	Respondent categories		Total
	Project Participants	Extension officers	
1. Very low knowledge (n) (%)	33 27.3%	3 4.2%	36 18.8%
2. Low knowledge (n) (%)	41 33.9%	17 23.9%	58 30.2%
3. Average knowledge (n) (%)	30 24.8%	13 18.3%	43 22.4%
4. High knowledge (n) (%)	13 10.7%	27 38.0%	40 20.8%
5. Very high knowledge (n) (%)	4 3.3%	11 15.5%	15 7.8%
Total (N) (%)	121 100.0%	71 100.0%	192 100.0%

$$x^2 = 39.475; p = < 0.0001$$

### 4.3 Knowledge of production efficiency as perceived by project participants and extension officer

#### 4.3.1 Production knowledge of the commodity before project starts and at the time of the interview

Table 3 below shows the improvement in terms of knowledge gained at interview of both respondent categories. There is a significant improvement of 26% (from 17.2% to 43.6%) of respondents who gained above-average knowledge at interview, and a 13% increase (from 4.4% to 17.4%) of all respondent categories gaining excellent knowledge. Project participants indicated a 30% increase of above-average knowledge and extension officer respondents indicated an increase of 21%. This finding supports the need for training of project participants before and during the life cycle of the project.

**Table 3:** Comparison of production knowledge before projects start and at time of interview

Production knowledge categories	Knowledge before production			Knowledge at interview			Percentage increase(+)/ decrease (-) of both respondent categories
	Project participants (%)	Extension officers (%)	Both respondents (%)	Project participants (%)	Extension officers (%)	Both respondents (%)	
1. No knowledge	30.7	13.2	24.1	16.3	15.3	15.9	-8.2
2. Some knowledge	19.7	23.7	21.2	4.9	1.4	3.6	-17.6
3. Average knowledge	33.9	31.6	33.0	22.8	13.9	19.5	-13.5
4. Above average knowledge	14.2	22.4	17.2	43.9	43.1	43.6	+26.4
5. Excellent knowledge	1.6	9.2	4.4	12.2	26.4	17.4	+13
Total	100	100	100	100	100	100	

#### 4.3.2 Knowledge of special design requirements before production starts and at the time of the interview

There is an improvement of +15% (above average) and + 11% (excellent knowledge) of knowledge gained in both categories of respondents in terms of special design requirement (Table 4 below). There was a significant decline in the percentage of respondents with no knowledge (-16%) and some knowledge (-20%). This finding indicates knowledge as being an important factor to ensure project success or failure.

**Table 4:** Comparison of knowledge of special design requirements before the projects start and at the time of interview

Knowledge of special design requirement categories	Knowledge before production			Knowledge at interview			Percentage increase (+)/ decrease (-) of both respondent categories
	Project participants (%)	Extension officers (%)	Both respondents (%)	Project participants (%)	Extension officers (%)	Both respondents (%)	
1. No knowledge	39.7	33.8	37.5	24.4	17.8	21.9	-15.6
2. Some knowledge	31.7	9.5	23.5	3.3	4.1	3.6	-19.9
3. Average knowledge	15.1	27.0	19.5	32.5	23.3	29.1	+9.6
4. Above average knowledge	11.9	18.9	14.5	25.2	35.6	29.1	+14.6
5. Excellent knowledge	1.6	10.8	5.0	14.6	19.2	16.3	+11.3
Total	100	100	100	100	100	100	

#### 4.3.3 Knowledge of special machinery and equipment requirements

A general improvement in all categories is noticeable, as far as the knowledge of special machinery and equipment and their requirements are concerned (Table 5 below). No knowledge decreased by 21%, while the average knowledge of both respondent categories increased by 14% and excellent knowledge increased by 11%. This again is an important result, emphasising the importance of capacity building by means of training. Knowledge is one of the intervening variables that change people’s behaviour.

**Table 5:** Knowledge comparison of special machinery and equipment requirements before project starts and at interview

Knowledge of special machinery and equipment categories	Knowledge before production			Knowledge at interview			Percentage increase(+)/ Decrease(-) for both respondents
	Project participants (%)	Extension officers (%)	Both respondents (%)	Project participants (%)	Extension officers (%)	Both respondents (%)	
1. No knowledge	42.5	29.7	37.8	17.9	16.4	17.3	-20.5
2. Some knowledge	29.1	14.9	23.9	5.7	5.5	5.6	-18.3
3. Average knowledge	15.0	20.3	16.9	39.8	16.4	31.1	+14.2
4. Above average knowledge	10.2	23.0	14.9	21.1	39.7	28.1	+13.2
5. Excellent knowledge	3.1	12.2	6.5	15.4	21.9	17.9	+11.4
Total	100	100	100	100	100	100	

#### 4.3.4 Knowledge of special transport requirements before production at interview

According to Table 6 below, both respondent categories indicated an excellent knowledge that increased by 14% at interview. Above-average knowledge also increased by 14%. More important, however, is that there is significantly less respondents with no knowledge, which decreased by 23%.

**Table 6:** Comparison of knowledge of special transport requirements before projects start and at the interview

Knowledge of special transport requirement categories	Knowledge before production			Knowledge at interview			Percentage increase(+)/ Decrease(-) of both respondents
	Project participants (%)	Extension officers (%)	Both respondents (%)	Project participants (%)	Extension officers (%)	Both respondents (%)	
1. No knowledge	48.0	25.7	39.8	18.0	15.3	17.0	-22.8
2. Some knowledge	22.8	16.2	20.4	10.7	5.6	8.8	-11.6
3. Average knowledge	14.2	18.9	15.9	28.7	12.5	22.7	+6.8
4. Above-average knowledge	11.8	31.1	18.9	31.1	34.7	32.5	+13.6
5. Excellent knowledge	3.1	8.1	5.0	11.5	31.9	19.1	+14.1
Total	100	100	100	100	100	100	

#### 4.3.5 Knowledge of product quality assurance requirements before production started and at interview

There was a general improvement in all respondent categories in terms of knowledge gain at interview, according to Table 7 below. The ‘no knowledge’ category decreased by 28%, while above-average knowledge increased by 13%, and excellent knowledge by 11%.

**Table 7:** Knowledge comparison of knowledge of product quality assurance requirements before project start and at the interview

Knowledge of quality assurance requirement categories	Knowledge before production			Knowledge at interview			Percentage increase(+)/ decrease (-) of both respondent categories
	Project participants (%)	Extension officers (%)	Both respondents (%)	Project participants (%)	Extension officers (%)	Both respondents (%)	
1. No knowledge	47.7	34.2	42.6	15.4	13.7	14.8	-27.8
2. Some knowledge	21.9	15.8	19.6	14.6	8.2	12.2	-7.4
3. Average knowledge	15.6	18.4	16.7	30.1	23.3	27.6	+10.9
4. Above-average knowledge	12.5	23.7	16.7	26.0	35.6	29.6	+12.9
5. Excellent knowledge	2.3	7.9	4.4	13.8	19.2	15.8	+11.4
Total	100	100	100	100	100	100	

#### 4.3.6 Knowledge of labour requirements

Table 8 below presents a comparative analysis of respondents’ knowledge about labour requirements before and at interview. It shows a good increase in knowledge gain at interview over that before production. The above-average knowledge increased by 18% and the excellent knowledge by 15%. The ‘no knowledge’ category decreased by 17%. The increase in the project participants’ above average (20%) and excellent knowledge (13%), underlines the importance of capacity building by means of training (dependent variable) to change people’s behaviour.

**Table 8:** Comparison of knowledge of labour requirements before project start and at interview

Knowledge about labour requirement categories	Knowledge before production			Knowledge at interview			Percentage increase(+)/ Decrease(-) of both respondent categories
	Project participants (%)	Extension officers (%)	Both respondents (%)	Project participants (%)	Extension officers (%)	Both respondents (%)	
1. No knowledge	28.3	22.4	26.1	13.0	2.8	9.2	-16.9
2. Some knowledge	36.2	10.5	26.6	20.3	15.3	18.5	-8.1
3. Average knowledge	18.9	30.3	23.2	16.3	15.3	15.9	-7.3
4. Above-average knowledge	11.0	25.0	16.3	31.7	37.5	33.8	+17.5
5. Excellent knowledge	5.5	11.8	7.9	18.7	29.2	22.6	+14.7
Total	100	100	100	100	100	100	

#### 4.3.7 Respondents' knowledge of time devoted to the production of farm products

According to Table 9 below, 26% of both respondent categories did not have knowledge of the time devoted to production before production while at interview it decreased to 11%. Only 9% of respondents indicated an excellent knowledge before production, against 24% at interview, a positive improvement. The above-average knowledge increased by 16%. Respondents who indicated “no knowledge” decreased by 15%, and “excellent knowledge” increased by 15%.

**Table 9:** A comparison of respondents' knowledge of the necessity to devote time on the produce before and at interview

Level of knowledge of time devoted on the produce categories	Knowledge before production			Knowledge at interview			Percentage increase(+)/ Decrease(-) of both respondents
	Project participants (%)	Extension officers (%)	Both respondents (%)	Project participants (%)	Extension officers (%)	Both respondents (%)	
1. No knowledge	29.4	19.7	25.7	9.8	12.3	10.8	-14.9
2. Some knowledge	17.5	17.1	17.3	10.7	2.7	7.7	-9.6
3. Average knowledge	30.2	18.4	25.7	23.0	13.7	19.5	-6.2
4. Above-average knowledge	15.1	34.2	22.3	36.9	41.1	38.5	+16.2
5. Excellent knowledge	7.9	10.5	8.9	19.7	30.1	23.6	+14.7
Total	100	100	100	100	100	100	

## 5. SUMMARY AND CONCLUSION

### ❖ Knowledge assessment

Knowledge of both respondent categories was assessed in terms of participants' knowledge about production before, and at interview and project management. Knowledge assessment was based on the level of knowledge at the beginning of the project, production status of the commodity, special design requirements, special machines and equipment requirements, special transport requirements, quality assurance requirements, labour requirements, and time devoted on the produce.

A general improvement in all categories was noticeable in knowledge gain at interview, compared to that before production. This could be attributed to the fact that project participants were now more involved than before the commencement of the project.

**Conclusion:** A logical conclusion to all aspects of production is the capacity building by means of training before production starts.

❖ **Knowledge of managing the project**

The total highest percentage across both respondent categories revealed that the majority of respondents indicated a high knowledge (44%). Significantly ( $p=0.019$ ) more extension officer respondents (59%) than project participants (35%) indicated a high knowledge, while significantly ( $p=0.019$ ) 41% of project participants and only 22% of extension officer respondents indicated an average knowledge in managing the project. Farmers have high knowledge of what they produce and of how to manage the project.

**Conclusion:** Management of the project is the responsibility of the project participants, with extension officers providing technical and other support.

❖ **The level of knowledge at the beginning of the project as perceived by project participants and extension officer respondents.**

A total of 34% of project participants and 24 % of extension officers indicated a low knowledge level, while 38% of extension officers and only 11% of project participants indicated a high knowledge level at the beginning of the project. The fact that 49 % of all respondents indicated a low and very low level of knowledge is alarming and needs urgent attention.

**Conclusion:** There is a need for the training of project participants before the project starts, and also an increase in the frequency of training.

❖ **Knowledge was assessed on the following aspects of production:**

- Status of production knowledge of the commodity in the area:
- The above-average production knowledge increased from only 17% before the project start to 44% at interview. Excellent knowledge increased from 4% before project start to 17% at interview.
- Knowledge of special design requirements:
- The above-average knowledge of special design requirements increased from only 15% before the project start to 29% at interview. Excellent knowledge increased from 5% before project start to 16% at interview.
- Knowledge of special design machinery:
- The above-average knowledge of special design machinery increased from only 15% before the project start to 28% at interview. Excellent knowledge increased from 7% before project start to 18% at interview.
- Knowledge of special transport requirements:

- The above-average knowledge of special transport requirements increased from only 19% before the project start to 33% at interview. Excellent knowledge increased from 5% before project start to 19% at interview.
- Knowledge of product quality assessment:
- The above-average knowledge of product quality assessment increased from only 17% before the project start to 28% at interview. Excellent knowledge increased from 4% before project start to 16% at interview.
- Knowledge of labour requirements:
- The above-average knowledge of labour requirements increased from only 16% before the project start to 34% at interview. Excellent knowledge increased from 8% before project start to 23% at interview.
- Knowledge of time devoted to projects
- The above-average knowledge of time devoted to projects increased from only 22% before the project start to 39% at interview. Excellent knowledge increased from 9% before project start to 24% at interview.

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