Full Length Research

Driver's of entrepreneurial opportunities exploitation by Tree Farmers in Kenya: the case of Improved Eucalyptus Trees Growing in Lari District

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The introduction of improved Eucalyptus trees varieties to Kenya in 1997 from Mondi Forests in South Africa by Tree Biotechnology Project (TBP) has rekindled tree-planting culture. Millions of seedlings have been distributed across the country. By administering questionnaires to a sample of 385 tree farmers in Lari District of Kiambu County, the study sort to empirically test the critical factors influencing the planting of improved Eucalyptus trees. The study revealed 63.6% of the farmers indicated the improved eucalyptus tree enterprises had complied with quality highly while 66.2% of them indicate that the improved eucalyptus tree seedlings enterprises had complied fairly with environmental safety. Covariance Matrix shows that although theoretically the factor scores should be entirely uncorrelated, the covariance is not zero, which is a consequence of the scores being estimated rather than calculated exactly. Hence there were factors that had no influence on the farmers’ planting improved eucalyptus tree varieties in Lari District. The driver's of opportunity exploitation from this research, included risk aversion, opportunity for product differentiation, degree of control over production processes, skills to make it work and availability of ready market. These drivers are critical in any entrepreneurial process and underscore the premises that the trees farmers in pursuing the opportunity of improved tree varieties they were entrepreneurial. Policy interventions that can enhance these driver's would result in accelerated planting of more improved trees varieties.

Keywords: Improved eucalyptus varieties, opportunity exploitation, tree farmers, entrepreneurship

INTRODUCTION

The entrepreneurial process involves the identification and evaluation of opportunities, the decision whether or not to exploit it, the efforts to obtain resources, the process for organizing those resources into a new
combination and the development of a strategy for the new venture.

Since the introduction of improved eucalyptus varieties from South Africa ten years ago only about 16,000 growers have taken up the planting of the seedlings. Considering there are about 10 million smallholder farmers in Kenya the potential has not been realized in tree growing. It is estimated that from 2001 to 2011, the project had distributed 22.8 million seedlings nationally with smallholder farmers taking largest percentage. For example, in 2007 a total of 2.9 million seedlings were distributed with smallholder farmers taking 73.1% (2,120,524), corporate bodies 21.9% (634,825) and organized groups 5% (144,429) (Tree Biotechnology Project communication).

The introduction of new varieties of genetically superior eucalyptus trees in Kenya was a move to support the conservation of indigenous forests from further depletion (KFMP, 1994). For Susan Mwangi of Kamuchege village in Kiambu the idea to spare more than two acres of her farm to plant trees was as a result of this new realization. Mwangi is one of the many small-scale farmers in Lari division of central Kenya who have planted the new genetically superior eucalyptus. These different activities are all influenced by individual, industry and institution level driver’s.

Far-reaching changes are taking place in the social, political, and economic systems in the world with possible consequences for farm forestry and its institutional arrangements, particularly in developing countries like Kenya. These changes include an increase in the country’s population and a rise in forest related activities. According to the 2009 population census, Kenya’s population stood at 38.6 million people (Government of Kenya, 2010). The increasing population will continue to exert pressure on the forest resources through a growing demand for forest products, services, and land for alternative uses. It is projected that on current trends, the demand for wood in the high potential and medium potential districts will increase from 15.1 million m$^3$ in 1995 to 30.7 million m$^3$ in 2020 (Government of Kenya, 1994).

It is also glaring to note that conceptual theories on entrepreneurship have been contributed mainly by scholars from the western developed countries whose reasoning could be largely shaped by their different individual, institutional support and socio economic and cultural experiences. This could rather make their theories unsuitable to emerging economies such as Kenya as entrepreneurship or opportunity creation could not be judged in isolation of its environments. The literature review demonstrates that there is a significant gap in knowledge on issues associated with entrepreneurship and entrepreneurial opportunity. Despite the conceptual and empirical analysis, the debates on the whole idea of entrepreneurial opportunity is yet to produce a complete and fully developed alternative framework (Alvarez & Barney, 2007).

Studies from Kenya on the processes and critical driver’s that enhance the opportunity and exploitation of entrepreneurial opportunities driver’s among smallholder farmers have not been systematically researched and documented. To fill this gap, the study sought to examine the improved eucalyptus entrepreneurial opportunity exploitation driver’s from the perspective of tree growers in Lari District. The key problem is why there is a slow uptake of the improved eucalyptus and the study sort to investigate the phenomenal by application of entrepreneurial theories.

MATERIALS AND METHODS

The study was carried out in among tree farmers in Lari sub-county. The collected data was entered into spreadsheets for cleaning and storage. Statistical analysis was done using Statistical Package for Social Scientists (SPSS) version 20. The descriptive results were summarized using tables and association and inferential statistics correlations and factor analysis were utilized respectively. Correlations were to test for pairwise association strength of the variable of interest. Factor analysis attempts to represent a set of observed variables $X_1$, $X_2$, ..., $X_n$ in terms of a number of ‘common’ factors plus factors that was unique to each variable. The common factors are hypothetical variables which explain why a number of variables are correlated with each other as the variables have one or more factors in common. The study assumed that the intensity of exploitation is a linear function of set of farmer and opportunity characteristics, which may be the same or different from the set represented by the covariates $x_i$. Specifically, using $v_i$, $i = 1, 2, ..., N$ to denote quantities, the intensity of exploitation is specified as:

$$ q_i = x_i \beta + \epsilon_i $$

RESULTS AND DISCUSSION

Driver’s of improved eucalyptus trees farming

Farming of eucalyptus tree seedlings has been very wide spread in most parts of Kenya especially where people have different intention’s such as additional incomes to other farming activities. Hence there are different factors that influence the start-up of farming of improved eucalyptus tree seedlings. This study investigated the different driver’s of farming of eucalyptus trees asked the respondents to rate them. The results are as shown in Table 1.

About 60% of the farmers felt it was fair to indicate that
expected future demand in wood fuel energy had influenced their decision to start up farming in improved eucalyptus tree seedlings while 51.4% of them noted that the skills and provisions needed to make it work had influenced their decision to start up farming improved eucalyptus tree seedlings.

On the other hand 49.1% of the farmers said it was fair and 36.9% of them it was high to note that decision was influenced by their prior knowledge in agro forestry management. This shows that although some farmers had knowledge on agro forestry this did not have much influence on their decision to start up farming in improved eucalyptus. Another group of farmers (46.5%) noted that they were highly and (28.8%) were fairly influenced to make their decision to start up farming improved eucalyptus by the availability of ready market.

It is worth noting that 43.1% were fairly influenced to make a decision to start up farming in improved eucalyptus tree seedlings by their individual entrepreneurial management capabilities. This shows some farmers ventured into farming eucalyptus trees because they were willing to have the venture as an entrepreneurial. Others farmers 39.7% noted that they were fairly influenced by the level of initial capital outlay and 34.3% of them noted they were fairly influenced by their passion for environmental conservation to start up farming in improved eucalyptus tree seedlings.

The least rated factors included the government support, collaboration with support organizations such as KEFRI, degree of control over production processes, type of government regulations and availability of cheap labour from within the project. These factors had a less

<p>| Table 1: Driver’s of start up farming in improved eucalyptus tree seedlings |
|---------------------------------|----------------|----------------|----------------|----------------|----------------|</p>
<table>
<thead>
<tr>
<th>Prior knowledge in agro forestry management</th>
<th>High</th>
<th>Fair</th>
<th>Low</th>
<th>Poor</th>
<th>Not at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior knowledge in agro forestry management</td>
<td>(36.9%)</td>
<td>(49.1%)</td>
<td>(10.1%)</td>
<td>(1.0%)</td>
<td>(2.1%)</td>
</tr>
<tr>
<td>Skills and provisions needed to make it work</td>
<td>(33.5%)</td>
<td>(51.4%)</td>
<td>(11.9%)</td>
<td>(1.8%)</td>
<td>(0.3%)</td>
</tr>
<tr>
<td>Availability of ready markets</td>
<td>(46.5%)</td>
<td>(28.8%)</td>
<td>(19.2%)</td>
<td>(2.6%)</td>
<td>(0.6%)</td>
</tr>
<tr>
<td>Passion for environment conversation</td>
<td>(8.6%)</td>
<td>(34.3%)</td>
<td>(29.4%)</td>
<td>(20.8%)</td>
<td>(1.3%)</td>
</tr>
<tr>
<td>Expected future demand in wood fuel energy hence guaranteed cash flows</td>
<td>(21.8%)</td>
<td>(60.0%)</td>
<td>(11.7%)</td>
<td>(3.1%)</td>
<td>(0.8%)</td>
</tr>
<tr>
<td>Level of initial capital outlay</td>
<td>(1.3%)</td>
<td>(39.7%)</td>
<td>(46.8%)</td>
<td>(7.8%)</td>
<td>(1.6%)</td>
</tr>
<tr>
<td>Opportunities for product differentiation</td>
<td>(3.6%)</td>
<td>(37.7%)</td>
<td>(37.4%)</td>
<td>(15.6%)</td>
<td>(1.3%)</td>
</tr>
<tr>
<td>Information availability</td>
<td>(4.4%)</td>
<td>(29.1%)</td>
<td>(41.3%)</td>
<td>(18.4%)</td>
<td>(2.3%)</td>
</tr>
<tr>
<td>Individual entrepreneurial management capabilities</td>
<td>(5.2%)</td>
<td>(43.1%)</td>
<td>(35.6%)</td>
<td>(11.4%)</td>
<td>(0.5%)</td>
</tr>
<tr>
<td>Personal degree of risk aversion</td>
<td>(3.1%)</td>
<td>(32.5%)</td>
<td>(35.8%)</td>
<td>(26.0%)</td>
<td>(1.3%)</td>
</tr>
<tr>
<td>Availability of cheap labour from within project areas</td>
<td>(21.0%)</td>
<td>(23.4%)</td>
<td>(30.4%)</td>
<td>(21.6%)</td>
<td>(2.3%)</td>
</tr>
<tr>
<td>Type of government regulation</td>
<td>(2.6%)</td>
<td>(20.0%)</td>
<td>(35.3%)</td>
<td>(33.8%)</td>
<td>(3.9%)</td>
</tr>
<tr>
<td>Degree of control over production processes</td>
<td>(3.9%)</td>
<td>(4.4%)</td>
<td>(31.2%)</td>
<td>(51.2%)</td>
<td>(8.3%)</td>
</tr>
<tr>
<td>Collaborations with support organizations such as KEFRI</td>
<td>(0.8%)</td>
<td>(8.8%)</td>
<td>(14.5%)</td>
<td>(59.0%)</td>
<td>(15.1%)</td>
</tr>
<tr>
<td>Government support</td>
<td>(0.8%)</td>
<td>(4.7%)</td>
<td>(15.3%)</td>
<td>(63.6%)</td>
<td>(13.0%)</td>
</tr>
</tbody>
</table>

Source: Field Data, 2011
Table 2. Communalities(a)

<table>
<thead>
<tr>
<th></th>
<th>Initial</th>
<th>Extraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education level</td>
<td>1.000</td>
<td>0.507</td>
</tr>
<tr>
<td>Started your enterprise as a partnership with any other firms or agencies</td>
<td>1.000</td>
<td>0.823</td>
</tr>
<tr>
<td>Agro business facilitated by any government incentives or public agencies on start up</td>
<td>1.000</td>
<td>0.798</td>
</tr>
<tr>
<td>Prior knowledge in agro forestry management</td>
<td>1.000</td>
<td>0.744</td>
</tr>
<tr>
<td>Skills and provisions needed to make it work</td>
<td>1.000</td>
<td>0.773</td>
</tr>
<tr>
<td>Availability of ready markets</td>
<td>1.000</td>
<td>0.549</td>
</tr>
<tr>
<td>Collaborations with support organizations such as KEFRI</td>
<td>1.000</td>
<td>0.623</td>
</tr>
<tr>
<td>Government support</td>
<td>1.000</td>
<td>0.739</td>
</tr>
<tr>
<td>Passion for environmental conversation</td>
<td>1.000</td>
<td>0.279</td>
</tr>
<tr>
<td>Level of initial capital outlay</td>
<td>1.000</td>
<td>0.586</td>
</tr>
<tr>
<td>Expected future demand in wood fuel energy hence guaranteed cash flows</td>
<td>1.000</td>
<td>0.490</td>
</tr>
<tr>
<td>Degree of control over production processes</td>
<td>1.000</td>
<td>0.554</td>
</tr>
<tr>
<td>Opportunities for product differentiation</td>
<td>1.000</td>
<td>0.531</td>
</tr>
<tr>
<td>Type of government regulation</td>
<td>1.000</td>
<td>0.290</td>
</tr>
<tr>
<td>Information availability</td>
<td>1.000</td>
<td>0.516</td>
</tr>
<tr>
<td>Individual entrepreneurial management capabilities</td>
<td>1.000</td>
<td>0.527</td>
</tr>
<tr>
<td>Personal degree of risk aversion</td>
<td>1.000</td>
<td>0.579</td>
</tr>
<tr>
<td>Availability of cheap labour from within project areas</td>
<td>1.000</td>
<td>0.636</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.

a Only cases for which Size of land = 0.1-5 acres are used in the analysis phase.

Impact on the farmers’ decision making to start up farming in improved eucalyptus tree seedlings. Hence the researcher observes that decision to start up farming in improved eucalyptus tree seedlings was based on the individual farmer without external forces such as the government and organizations that dealt with trees such as KEFRI. Conservation experts say fuel wood consumption in Africa has doubled since 1950 with the demand for fuel wood in Kenya outstripping the supply by at least four percent each year (Kenya Forestry Master Plan (KFMP), 1994). (Senelwa et al., 2004) noted that in Kenya, wood fuel accounts for about 70 to 75 percent of the total energy used, which includes both fuel wood for cooking and heating in the rural areas and charcoal for the urban areas. This would have encouraged more farmers to venture into agro farming.

Factor analysis on factors influencing opportunity exploitation of improved eucalyptus tree varieties

This study sought to identify factors that influenced opportunity exploitation for improved eucalyptus tree varieties. The results for the communalities are as shown in Table 2.

The extraction column indicates the amount of variance that each of the variables Xi’s can be explained by each variable. The response on farmers, who start as enterprise as a partnership with any other firms or agencies explains highest variation at 82.3%, starting up of agro business facilitated by any government incentives or public agencies accounted for 79.8% variance, skills and provisions needed to make it work 77.3%, prior knowledge in agro forestry management 74.4%, government support 73.9%. Which were the only variable that accounted for variation above 70%.

Variance explained

Table 3 shows the eigen values and the amount of variance explained by each successive factor. The rest of the factor analysis is based on five factors, because five factors have eigen values greater than one. It has been suggested that over-extraction leads to less distorted results than under-extraction; (Wood, Tataryn & Gorsuch, 1996). The quantities at the bottom of each factor column are the sums of the squared loadings for that factor, and show how much of the total variance of the observed variables is accounted.
Table 3. Total Variance Explained

<table>
<thead>
<tr>
<th>Component</th>
<th>Initial Eigenvalues</th>
<th>Extraction Sums of Squared Loadings</th>
<th>Rotation Sums of Squared Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>% of Variance</td>
<td>Cumulative %</td>
</tr>
<tr>
<td>2</td>
<td>2.720</td>
<td>15.112</td>
<td>36.999</td>
</tr>
<tr>
<td>3</td>
<td>1.527</td>
<td>8.485</td>
<td>45.484</td>
</tr>
<tr>
<td>4</td>
<td>1.270</td>
<td>7.056</td>
<td>52.541</td>
</tr>
<tr>
<td>5</td>
<td>1.086</td>
<td>6.036</td>
<td>58.577</td>
</tr>
<tr>
<td>6</td>
<td>.959</td>
<td>5.325</td>
<td>63.902</td>
</tr>
<tr>
<td>7</td>
<td>.847</td>
<td>4.706</td>
<td>68.608</td>
</tr>
<tr>
<td>8</td>
<td>.828</td>
<td>4.600</td>
<td>73.208</td>
</tr>
<tr>
<td>9</td>
<td>.739</td>
<td>4.105</td>
<td>77.313</td>
</tr>
<tr>
<td>10</td>
<td>.677</td>
<td>3.763</td>
<td>81.076</td>
</tr>
<tr>
<td>11</td>
<td>.584</td>
<td>3.246</td>
<td>84.322</td>
</tr>
<tr>
<td>12</td>
<td>.560</td>
<td>3.110</td>
<td>87.432</td>
</tr>
<tr>
<td>13</td>
<td>.525</td>
<td>2.915</td>
<td>90.347</td>
</tr>
<tr>
<td>14</td>
<td>.478</td>
<td>2.657</td>
<td>93.004</td>
</tr>
<tr>
<td>15</td>
<td>.420</td>
<td>2.334</td>
<td>95.338</td>
</tr>
<tr>
<td>16</td>
<td>.414</td>
<td>2.299</td>
<td>97.637</td>
</tr>
<tr>
<td>18</td>
<td>.141</td>
<td>.784</td>
<td>100.000</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.

a Only cases for which Size of land = 0.1-5 acres are used in the analysis phase.

for by that factor. For Factor 1, the total is 3.940, this factor analyses shows the total amount of variance is equal to the number of observed variables (the variables are standardized, so each has a variance of one), the total variation here is sixteen, so that Factor 1 accounts for \((3.940/18) \times 100 = 21.887\%\) of the variance. The quantities in the communality column show the proportion of the variance of each variable accounted for by the common factors resulting to high correlation between the variables. Hence this study shows that factors were over-extracted hence less distortion of the factor tested had an influence on opportunity exploitation of farmers planting improved eucalyptus tree varieties. The correlation matrix would show whether there is any relationship between the variables.

There are certain variables such as level of education, start enterprises as a partnership with any other firm or agencies, startup of agro business facilitated by government, and availability of cheap that were related positively at a significance level of 0.05, the study also established that there is no relationship between level of education, with size of land, prior knowledge, skills and provisions needed to make it work, availability of ready market, collaboration with support organizations such as KEFRI, government support, passion for environmental conversation, level of initial capital, expected future demand, degree of control over production process, opportunity for product differing, type of government regulations, information availability and individual entrepreneurial management capabilities, personal degree of risk aversion.

This means that level of education and size of land had no correlation with factors that influence opportunity exploitation. Factors such as start enterprise as a partnership with other firms or agencies, facilitation of agro business by government or public agencies, prior knowledge, skills and provision needed to make it work, availability of ready market, level of initial capital, expected future demand in wood fuel energy, degree of control over production processes, opportunity for product differentiation, government regulations, information availability and personal degree of risk aversion had a positive relationship at a level of significance of 0.01 and 0.05 respectively. This explains the reasons as to why these farmers exploited the opportunities presented in planting improved eucalyptus tree varieties.

Factor Matrix (Table 4) shows the coefficients for 5
Table 4. Factor Matrix (a, b)

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of education</td>
<td>0.154</td>
<td>-0.053</td>
<td>0.082</td>
<td>0.312</td>
<td><strong>0.613</strong></td>
</tr>
<tr>
<td>Started your enterprise as a partnership with any other firms or agencies</td>
<td>0.509</td>
<td>-0.620</td>
<td>0.369</td>
<td>0.207</td>
<td>0.021</td>
</tr>
<tr>
<td>Starting up of your agro business facilitated by any government incentives or public agencies</td>
<td>0.513</td>
<td>-0.593</td>
<td>0.339</td>
<td>0.259</td>
<td>0.033</td>
</tr>
<tr>
<td>Prior knowledge in agro forestry management</td>
<td>-0.161</td>
<td>0.618</td>
<td><strong>0.546</strong></td>
<td>0.179</td>
<td>-0.077</td>
</tr>
<tr>
<td>Skills and provisions needed to make it work</td>
<td>-0.100</td>
<td><strong>0.662</strong></td>
<td>0.544</td>
<td>0.169</td>
<td>-0.021</td>
</tr>
<tr>
<td>Availability of ready markets</td>
<td>-0.348</td>
<td>0.626</td>
<td>-0.119</td>
<td>0.127</td>
<td>0.072</td>
</tr>
<tr>
<td>Collaborations with support organizations such as KEFRI</td>
<td>0.354</td>
<td>0.272</td>
<td>0.241</td>
<td>-0.574</td>
<td>-0.191</td>
</tr>
<tr>
<td>Government support</td>
<td>0.073</td>
<td>0.016</td>
<td>0.223</td>
<td>-0.727</td>
<td>0.394</td>
</tr>
<tr>
<td>Passion for environmental conversation</td>
<td>0.356</td>
<td>-0.031</td>
<td>-0.333</td>
<td>-0.186</td>
<td>-0.075</td>
</tr>
<tr>
<td>Level of initial capital outlay</td>
<td>0.517</td>
<td>0.249</td>
<td>0.303</td>
<td>-0.106</td>
<td>0.391</td>
</tr>
<tr>
<td>Expected future demand in wood fuel energy hence guaranteed cash flows</td>
<td>0.152</td>
<td>0.595</td>
<td>-0.286</td>
<td>0.173</td>
<td>-0.031</td>
</tr>
<tr>
<td>Degree of control over production processes</td>
<td>0.681</td>
<td>0.246</td>
<td>-0.096</td>
<td>0.088</td>
<td>-0.115</td>
</tr>
<tr>
<td>Opportunities for product differentiation</td>
<td>0.701</td>
<td>0.138</td>
<td>-0.114</td>
<td>-0.058</td>
<td>-0.068</td>
</tr>
<tr>
<td>Type of government regulation</td>
<td>0.504</td>
<td>0.158</td>
<td>0.079</td>
<td>-0.047</td>
<td>-0.057</td>
</tr>
<tr>
<td>Information availability</td>
<td>0.412</td>
<td>0.005</td>
<td>0.313</td>
<td>0.063</td>
<td>-0.494</td>
</tr>
<tr>
<td>Individual entrepreneurial management capabilities</td>
<td>0.648</td>
<td>0.200</td>
<td>-0.252</td>
<td>0.052</td>
<td>-0.033</td>
</tr>
<tr>
<td>Personal degree of risk aversion</td>
<td><strong>0.752</strong></td>
<td>0.031</td>
<td>-0.109</td>
<td>-0.001</td>
<td>-0.033</td>
</tr>
<tr>
<td>Availability of cheap labour from within project areas</td>
<td>0.570</td>
<td>0.365</td>
<td>-0.259</td>
<td>0.176</td>
<td>0.281</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis.

* a 5 components extracted.
* b Only cases for which Size of land = 0.1-5 acres are used in the analysis phase.

Source: Field Data, 2011

Principal components which indicate the 5 factors whose eigenvalues had greater than 1 value which had the highest probability of explaining sufficient variance that the 5 variable can be included in the model and explain the model sufficiently. The variables are personal degree of risk aversion 75.2% variation explained in component loader 1, skills and provisions needed to make it work 66.2% variation explained in component loader 2, prior knowledge in agro forestry management 54.6% variation explained in component loader 3, government support 72.7% variation explained in component loader 4 and level of education 61.3% variation explained in component loader 5. The five variables are the only variables when included in the model that can explain the model variation with meaningful variation that was totaling to 58.58 in table 4.

This change was brought about by rotating the whole frame, including the axes, in a counterclockwise direction. In this case the Varimax method was used for each variable, this seeks to maximise the loading on one factor and to minimise the loadings on other factors. The five variables that could explain the highest variance were availability of cheap labour from within project areas 69.5% variation explained in component loader 1, Started your enterprise as a partnership with any other firms or agencies 88.2% variation explained in component loader 2, skills and provisions needed to make it work 85.5% variation explained in component loader 3, government support 85.1% variation explained in component loader 4 and education level 68.9% variation explained in component loader 5. Table 5

A clear pattern now emerges, with items having to do enterprise as a partnership with any other firms or agencies and starting up of your agro business facilitated by any government incentives or public agencies loading highest on Factor 2 and those to do with Skills and provisions needed to make it work and prior knowledge loading highest on the Factor 3. The government support loading was highest on Factor 4, degree of control, individual entrepreneurial management capabilities, personal degree of risk aversion and availability of cheap labour from within the project areas loading highly in
Table 5: Rotated Component Matrix (a, b)

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education level</td>
<td>0.075</td>
<td>0.148</td>
<td>0.064</td>
<td>-0.003</td>
<td><strong>0.689</strong></td>
</tr>
<tr>
<td>Started your enterprise as a partnership with any other firms or agencies</td>
<td>0.159</td>
<td><strong>0.882</strong></td>
<td>-0.068</td>
<td>-0.034</td>
<td>0.117</td>
</tr>
<tr>
<td>Started up of your agro business facilitated by any government incentives or public agencies</td>
<td>0.182</td>
<td>0.856</td>
<td>-0.060</td>
<td>-0.080</td>
<td>0.149</td>
</tr>
<tr>
<td>Prior knowledge in agro forestry management</td>
<td>-0.037</td>
<td>-0.181</td>
<td>0.841</td>
<td>0.022</td>
<td>-0.041</td>
</tr>
<tr>
<td>Skills and provisions needed to make it work</td>
<td>0.028</td>
<td>-0.194</td>
<td><strong>0.855</strong></td>
<td>0.063</td>
<td>0.009</td>
</tr>
<tr>
<td>Availability of ready markets</td>
<td>-0.058</td>
<td>-0.640</td>
<td>0.338</td>
<td>-0.117</td>
<td>0.094</td>
</tr>
<tr>
<td>Collaborations with support organizations such as KEFRI</td>
<td>0.335</td>
<td>0.001</td>
<td>0.164</td>
<td>0.575</td>
<td>-0.392</td>
</tr>
<tr>
<td>Government support</td>
<td>-0.056</td>
<td>-0.111</td>
<td>-0.072</td>
<td><strong>0.851</strong></td>
<td>0.081</td>
</tr>
<tr>
<td>Passion for environmental conversation</td>
<td>0.382</td>
<td>-0.035</td>
<td>-0.337</td>
<td>0.073</td>
<td>-0.111</td>
</tr>
<tr>
<td>Level of initial capital outlay</td>
<td>0.446</td>
<td>0.148</td>
<td>0.279</td>
<td>0.424</td>
<td>0.329</td>
</tr>
<tr>
<td>Expected future demand in wood fuel energy hence guaranteed cash flows</td>
<td>0.430</td>
<td>-0.486</td>
<td>0.184</td>
<td>-0.180</td>
<td>0.046</td>
</tr>
<tr>
<td>Degree of control over production processes</td>
<td>0.736</td>
<td>0.074</td>
<td>0.065</td>
<td>-0.031</td>
<td>-0.043</td>
</tr>
<tr>
<td>Opportunities for product differentiation</td>
<td>0.707</td>
<td>0.123</td>
<td>-0.060</td>
<td>0.100</td>
<td>-0.051</td>
</tr>
<tr>
<td>Type of government regulation</td>
<td>0.491</td>
<td>0.132</td>
<td>0.110</td>
<td>0.129</td>
<td>-0.054</td>
</tr>
<tr>
<td>Information availability</td>
<td>0.337</td>
<td>0.382</td>
<td>0.265</td>
<td>-0.075</td>
<td>-0.425</td>
</tr>
<tr>
<td>Individual entrepreneurial management capabilities</td>
<td>0.719</td>
<td>-0.002</td>
<td>-0.093</td>
<td>-0.030</td>
<td>0.025</td>
</tr>
<tr>
<td>Personal degree of risk aversion</td>
<td>0.715</td>
<td>0.229</td>
<td>-0.110</td>
<td>0.063</td>
<td>0.007</td>
</tr>
<tr>
<td>Availability of cheap labour from within project areas</td>
<td><strong>0.695</strong></td>
<td>-0.159</td>
<td>0.017</td>
<td>-0.021</td>
<td>0.356</td>
</tr>
</tbody>
</table>


a Rotation converged in 5 iterations
b Only cases for which Size of land = 0.1-5 acres are used in the analysis phase.

Source: Field Data, 2011

Factor 1 and level of education loading highly in Factor 5. Passion for environmental conversation, level of capital, type of government regulations, and expected future demand in wood fuel energy and availability of information had low loadings on all the factors.

Table 6 concludes that some variables were omitted hence the factor analysis indicates on the variables that were related. Therefore there were factors that did not have an effect on opportunity exploitation for farmers planting improved eucalyptus tree varieties in Lari District. The factors that influenced opportunity exploitation included risk aversion, opportunity for product differentiation, degree of control over production processes, skills to make it work and availability of ready market.

**CONCLUSION**

The exploitation of seedlings by the small scale farmers is majorly due to self-initiative as a result of friends talking about the benefits from the entrepreneurial tree farming
from the farmers who have experience in planting improved Eucalyptus trees varieties. Hence the study conclusion that self-initiative was as result of self-persuasion for future gains.

The aspect of entrepreneurial exploiting by small scale farmers have resource challenges for innovation compared to larger farms farmers who have higher notch on access to risk bearing financial resources to invest in innovation. Credit facility for the small scale farmers and more so women are marginalized to plant economical woodlots compared to men. The main source of financing for farming of improved eucalyptus tree seedlings as revealed in the study was personal saving: the front running farmers in the past, have a higher probability to be a frontrunner at present and farmers that were laggards in the past are likely to remain so. It is critical to train one of entrepreneurial farming groups who in turn offer basic improved Eucalyptus tree farming varieties services training and most likely the community can meet their cost within private sector development.

The Principal Component Analysis calculated that only five of all the factors in the model were sufficient to explain the variation 58.58% and this are demonstrated in factor matrix as education level explain the variation 58.58% and this are demonstrated in five of all the factors in the model were sufficient to make it work for farmers that have a higher notch in the past, have a higher probability to be a frontrunner at present and farmers that were laggards in the past are likely to remain so. It is critical to train one of entrepreneurial farming groups who in turn offer basic improved Eucalyptus tree farming varieties services training and most likely the community can meet their cost within private sector development.

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References


Mercado, A.R. Cadisch, G. Pailagao, C. Arcinal, G.


