THE NEED FOR A NEW GENERATION OF FARMERS AND AGRICULTURISTS IN SOUTH AFRICA AND THE ROLE OF AGRICULTURAL EXTENSION

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ABSTRACT

Agriculture remains an important sector in the South African economy. According to the Strategic Plan for South African Agriculture, it recognises the importance of the youth, emphasises the education and training of the youth, to ensure a new generation of farmers and agriculturists. The youth however show very little interest in agriculture, not only in South Africa, but worldwide and one of the challenges will be to change the negative image of agriculture among the youth. A research study among Grade 12 learners from 25 schools in the Limpopo Province was done and it revealed that learners performed very poor in the final exam and 66% failed. Clear indications were found that the learners overestimated their performance; incorrectly assessed their coping strength; the majority (65%) were repeating the subject; there was a total lack of practical classes; the attitude of fellow learners (peer group) towards learners taking agricultural science was negative. Agricultural Science was perceived as unimportant to further their career and only 43% took the subject out of own choice. Teacher quality, knowledge, attitude and their enthusiasm were perceived by the learners as insufficient and negative.

It is suggested to address the problem by means of a coordinated effort by all role players in agriculture. Agricultural extension services and extension workers need to take the initiative and play a pivotal role. Proposals included to create and establish coordination and collaboration structures and linkages between all role players,

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including farmer organisations; agricultural education and training programs need to be implemented from primary school level upwards and be integrated into the school curriculum; the development and implementation of in-service education and training programs for teachers; support teachers with practical classes and ensure that extension workers are empowered and enthusiastic to participate in school and other projects and by doing so develop a new generation of young enthusiastic farmers and agriculturists for South Africa.

1. INTRODUCTION AND PROBLEM STATEMENT

The Government of South Africa and Organised Agriculture confirmed the importance of the agricultural sector in the economy of the Country and this has led to the development of The Strategic Plan for South African Agriculture (National Department of Agriculture, 2003).

According to the Plan the Vision for South African Agriculture is: "A united and prosperous agricultural sector" (National Department of Agriculture, 2003:5). This Vision acknowledges the diversity of the sector and one of the focus areas is to accommodate and energise all groups of the historically divided society, with special reference to race, gender, and *youth* categories. The challenge will be to identify programs to encourage new entrants black and white; *young* and old; men and women etc. to enter the sector. One of the Core Strategies is "Equitable access and participation strategies" and the focus is again on economic empowerment initiatives of black people, women, the disabled and the *youth* of all races. It also recognised that the *youth* of all races (p. 15) are the future and they should be encouraged to get involved in agricultural activities. This emphasises the importance of the education and training of the youth as the new generation of farmers and agriculturists for South Africa.

Not withstanding the importance of the youth in future agricultural development, there seems to be a lack of interest in agriculture by the youth as a future career. Parents and teachers often regard education as a path to a better life in the city, while agricultural work is seen as a type of punishment suitable for those who have not been doing well at school (Machinga, 2004:21).

In many countries resource-poor households will choose to send their sons rather than their daughters to school. Sometimes however it is the children themselves who turn their back on school. In East Africa a

poster with the words: "Don't exchange girls for cows" (LEISA, 2004:5) is part of an awareness campaign to motivate parents, not only to send their children to school but to support them to stay there. Because of domestic responsibilities at home, many girls have to leave school. Ayisa (2005:30) tells the story of a young girl in Mozambique who is one of many girls who has to take on the major share of household tasks, nursing the sick and caring for orphans because of the killer disease, Aids.

It becomes therefore necessary to get answers for the following questions:

- What is the situation in South Africa with regard to the youth and their interest in agriculture?

- According to statistics, learners doing agricultural science as a subject are performing very poor (Mahvungu, 2004:1). What are the possible reasons for the poor performance?

- Can extension services and therefore the extension worker, play a role to ensure the development of a new generation of farmers and agriculturists for South Africa?

- Is the education and training situation sufficient to address the need for a new generation of farmers and agriculturists?

2. THE PRIMARY AGRICULTURAL LANDSCAPE AN INTEGRATED SYSTEM

In 2003 Agriculturists in South Africa developed a landscape for primary agriculture. It was determined that primary agriculture consisted of three main components namely, Up-stream industries/organisations, the Farming component, consisting of three distinctly different sub-sectors and the Down-stream industries/organisations (see Table 1).

According to the Table 1 the provision of agricultural education and training is one of the important Up-stream activities. The availability of specific agricultural education and training opportunities in South Africa are being summarised in the Table 2.

Table 1: The Primary Agricultural Landscape in South Africa an Integrated System (PAETA, 2003:12)

Upstream	Sub-sectors	Production systems	Specific systems	Down stream
➢ Agricultural input resources: seed fertilizer chemicals machinery equipment ➢ Agricultural credit and funding ➢ Agricultural research ➢ Provision of: education; training; extension and other support services	1. Horticulture	* Vegetables	a) Hydroponics b) Open field c) Organic	➢ Agricultural Management: - Supervision - Food safety - Quality Management
		* Fruit	a) Traditional b) Organic	
		* Ornamentals	a) Cutflowers b) Potted/garden c) Landscape	
	2. Animal husbandry	* Small stock	a) Production b) Veterinary	➢ Land Care: - Conservation - Range management ➢ Marketing - local - informal - import - export
		* Large stock	a) Production b) Veterinary	
		* Dairy	a) Production b) Veterinary	
		* Game	a) Production b) Veterinary	
		* Poultry	a) Production b) Veterinary	
		* Aquaculture	a) Production b) Veterinary	
		* Beekeeping	a) Production	
	3. Agronomy	* Field crops * Forage crops * Legumes * Grains * Sugar		➢ Technical production: - packaging - distribution

Table 2: Agricultural education and training opportunities and providers in South Africa

Training providers	Number of providers	Qualifications	National qualification framework (NQF)
➢ Agricultural schools with a farm component	**46**	* National Certificate (Grade 12)	Further Education and Training (FET): **NQF level 4**
➢ Agricultural colleges	**11**	Whole qualifications: * National Certificate * National Diploma Learnerships: * Certificate Skills programs: * Certificate	Higher Education (HE**):** **NQF level 5** FET**:** **NQF level 2 - 4**
➢ Universities and Technikons	**15**	* Certificate * Advanced Diploma * Higher Diploma * Degree	HE: **NQF level 6 – 8**
➢ Private Institutions Accredited by AgriSETA (Agricultural Sector Education and Training Authority)	**87**	* Certificates (related to learner ships and skills programs)	FET: **NQF level 2 – 4** GET(General Education and Training): **NQF level 1/ ABET level 4**

According to the above table there are only 46 recognised Agricultural Secondary schools in South Africa that provides the opportunity for

young people to obtain a qualification in agriculture. These schools distinct themselves from other secondary schools because of a farm component linked to the school for hands-on practical training. A large number (± 1000) secondary schools in South Africa however do present the subject, agricultural science as part of their curriculum.

Only six of the 11 Agricultural Colleges still present certificates and diplomas on NQF level 5. These qualifications were specifically aimed to train prospective farmers and if these training programs are going to be terminated it could be disastrous because no other institution can fill the gap. The other colleges already operate only on the FET and even GET band of the NQF. A relative new development is the presentation of learnerships and skills programs on NQF level 1 – 5 by a number of private and public institutions, accredited by the AgriSETA.

One of the most important challenges will be to change the negative image of agriculture among the youth. According to Goodland (1984:10) students (learners) expressed considerable liking of certain subjects rather than others, and will develop a positive attitude towards a subject, Vernon (1986:8) declare, that an environment must be created which is stimulating enough for children to develop their abilities and satisfy their interest. A person cannot develop a positive attitude towards something he/she does not like (Routledge & Paul, 1979:95). Learners interest in a subject give rise to the strength of coping in the subject and subject preference contributes to the coping strength (aptitude) in the subject (Shipley, Cann, Hildebrand & Mitchel, 1968).

In the Limpopo province of South Africa the provincial Department of Education expresses its concern about the poor performance of Grade 12 learners in agricultural science (Graven and Steyn, undated). There are 347 secondary schools in the Province offering agricultural science, while only eight (8) of the schools can be described as Agricultural Secondary schools (National Agricultural Directory, 2004/2005:126–127).

Because of the poor performance in agricultural science by Grade 12 learners a study in 2003 was undertaken in District 3 (former Venda) of the Limpopo Province. Grade 12 learners from four different areas in District 3 were interviewed and a total of 160 respondents from 25

secondary schools (not agricultural schools) participated in the study (Mahvungu, 2004:16–18).

Aspects that received specific attention were:

- Learners' performance in agricultural science
- Determinants of performance
- Choice of agricultural science as a subject
- Presentation of the subject and
- Teachers of agricultural science

3. FACTORS INFLUENCING THE PERFORMANCE IN AGRICULTURAL SCIENCE

3.1 Performance in agricultural science

The general accepted way of assessing learner's performance is the so-called end of the year examination results and what every learner hope to achieve is a good performance in the subjects they were doing. The performance of the respondents in agricultural science and all the other subjects in Grade 12 are presented in Table 3.

Table 3: Percentage distribution of learners according to final (actual) examination results in the various subjects

	Results categories					
Subjects	**≤ 25%**	**26-39%**	**40-49%**	**50-59%**	**60-69%**	**≥ 70%**
Venda	0	0	0	45	46	9
English	1	11	16	41	26	5
Afrikaans	1	32	39	24	4	0
Biology	4	19	49	25	3	0
P/Science	18	44	34	2	2	0
Maths	27	42	17	9	5	0
Agric science	**36**	**30**	19	13	2	0
Geography	1	29	49	17	4	0
Home econ	0	17	50	33	0	0
Business econ	0	0	18	18	55	9
Economics	0	0	0	50	20	30
Accounting	0	0	28.5	28.5	28.5	14.5
Tech Drawing	0	0	50	50	0	0
Bib. Studies	0	3	8	30	56	3

A total of 66% of the learners failed (less than 40%) agricultural science. The poor performance is even worst by the fact that 36% did get 25% and less. This figure is even higher in comparison with the more difficult subjects namely mathematics (27%) and physical science (18%).

3.1.1 Overestimation of performance

Respondents were also requested to estimate their performance in the final exam, which can be seen as their perception of their coping strength. Only 2% of the respondents estimated that they will get 25 % or less, while according to Table 3, 36% got 25% or less in the final exam. A total of 92% expected a final mark of above 49% but only 15% achieved it. Learners totally overestimated their ability and it seems as if they were unaware of their shortcomings and/or weaknesses in the subject (Mahvungu, 2004:22-23).

3.1.2 Coping strength (aptitude)

Another indication of learner's perception of their own ability to cope was obtained by respondent's assessment of their aptitude (ability) in the subject (Ornstein, 1992:382). If they know and understand their coping strength, they will be in a position to allocate and spend more time on those subjects they experience difficulties with, and less time on subjects that they easily cope with. The results showed that 75% of the respondents indicated that their aptitude varies between reasonable, high to very high. Only 25% indicated a poor to very poor aptitude. This inability to correctly assess their aptitude can also be seen as a contributing factor to their poor performance (Mahvungu, 2004:24). A highly significant correlation ($r = 0.37$; $p = 0.001$) was found between coping strength and the actual results, an indication of, the poorer the coping strength, the poorer the actual results.

3.2 Determinants of performance

Other factors that might influence learner's performance in a subject are:

- Time spend on different subjects (extra reading)
- Number of years doing (repeating) the subject
- Number of practical classes done

- Peer group attitude
- Career opportunities in different subjects

3.2.1 Time spend on different subjects

According to Glaxton (1990:8) it is necessary for learners to do supplementary reading on a subject at home for it can influence performance in the subject positively. In Tshivenda 97% of the learners indicated that they spend between 60 – 180 additional hours of reading per month. In English 85% of the learners spend between 60 – 180 additional hours of reading per month, while only 58% of the respondents spend between 60 – 180 additional hours of reading in agricultural science per month. Glaxton (1990:8) came to the conclusion that if less hours are being spend on the subject learners have a problem with, it will contribute to less understanding of the subject matter and that could lead to poor performance in the subject. Respondents spend significantly less time on additional reading in agricultural science in comparison with other subjects.

3.2.2 Number of years doing (repeating) the subject

According to Ornstein (1992:680): "lack of academic success in a grade hinders learning of more difficult material and damages a students' perception on what he or she is capable of learning".

The majority of respondents (65.5%) were repeating agricultural science for the second, third and even fourth year. Only 35.5% indicated that it was their first year doing agricultural science. Although no significant correlation ($r = 0.102$; $p = 0.21$) was found between number of years doing the subject and the actual results it is still a clear indication that learners do experience a problem with agricultural science.

3.2.3 Number of practical classes done in agricultural science

There is sufficient evidence of the importance of practical training and according to Rogers, quoted by Gill (1995:33) experimental learning involve both hemispheres of the brain. This is reinforced by Ornstein (1992: 329) namely that practise must follow understanding and can enhance understanding. Students will learn more easily and remember longer if they practise what they have learned during classroom activities. Agricultural science has several different aspects or topics

that need special attention by means of practical or experimental training namely:

- Soil science
- Vegetable production
- Field crop production
- Animal husbandry
- Fruits and other crops

The study (Mahvungu, 2004:44-46) revealed the following:

- A total of 80% of the respondents indicated that they did not do any practical classes in soil science;

- 92% indicated that they did not do any practical work in vegetable and field crop production;

- 90% learners indicated that they were not involved in any practical work with regard to animal husbandry and

- 86% indicated no practical exposure in fruit crop production.

Because of a total lack of involvement in practical training, the poor performance in agricultural science, a subject that demands practical exposure, is of no surprise.

3.2.4 Peer group attitude

Peer group attitude according to Ornstein (1992:680) could have a positive or negative influence and "negative peer pressure is a problem". Vernon (1986:8) stated that it is always good and motivational to be accepted among the peer group.

The attitude of fellow learners towards learners taking agricultural science, (as perceived by respondents), are being indicated in Table 4.

According to the above table 39.4% of the respondents indicated a negative attitude towards learners taking agricultural science as a subject and only 15.6% indicated a positive attitude. This finding is an indication of learners being rejected by their peer group and therefore

Table 4: The perceived attitude of learners towards learners taking agricultural science (N = 160)

Attitude categories	Frequency n	Percentage %
Negative	63	**39.4**
Neutral	72	45.0
Positive	25	**15.6**
Total	**160**	**100.0**

another possible indication why learners in agricultural science performed poor.

3.2.5 Agricultural science and career opportunity

Respondents were requested to indicate the importance of their subjects as a factor that will contribute to their future career. According to Eisner (1983:89) a subject must enable learners "to become mappers of their own educational journey, so that when they leave school they are in a position to pursue goals and interests that are important to them". Ornstein (1992:79) indicated that it is about value clarification of a subject that help the learner to overcome value confusion and become more positive, purposeful and productive.

According to 43% of the respondents they perceived agricultural science as unimportant to further their career. It is only subjects such as Biblical studies (86%), Afrikaans (82%) and Venda (62.5%) that received a higher percentage of unimportance than agricultural science. Subjects that respondents indicated as important to further their career were accounting (100%), physical science (94%) English (85%), mathematics and biology (82%). A highly significant correlation ($r = 0.33$; $p = < 0.0001$) was found between respondents coping strength and career choice, the more negative they perceived agricultural science to further their career the poorer their coping strength in the subject.

3.3 Choice of agricultural science as a subject

Choice is something that goes hand in hand with the liking of something. One can for instance make a choice out of interest or they may choose something like a subject at school to please their peers or teacher. At school level learners could also be influenced by the school

curriculum, the teachers or their parents to make a choice. Goodland (1984:29) mentioned that learners must be given a chance to make a choice: "If not, teachers will frequently perceived themselves as confronting difficult problems or les motivated students. Some of our classrooms are loaded with youth who have no wish to be there, whose aim is not to learn but escape from learning".

Only 43% of the respondents indicated that they have taken agricultural science by own choice while 57% indicated that they were either forced or influence to take the subject. In indicating their preference of the different subjects it was only Afrikaans, showing an even lower preference than agricultural science. Subjects such as physical science, English and mathematics were highly preferred by respondents. The importance of a learner to be able to choose a subject cannot be overestimated (De Jager, 2006).

3.4 Presentation of agricultural science

Teachers without doubt play an important role to create or stimulate an interest among learners in the subject they teach.

The majority of respondents (87%) indicated that agricultural science is presented too theoretical. A significant correlation ($r = 0.22$; $p = 0.02$) was found between the presentation of the subject and the actual performance of the learners, a confirmation that the more theoretical the presentation the higher the failure rate. The majority of the respondents also indicated that apparatus necessary for practical classes was totally insufficient (see also paragraph 3.2.3 – Number of practical classes done).

3.5 Teachers of agricultural science

3.5.1 Quality of agricultural teachers

Teacher quality is a major factor contributing to improve learning outcomes of students. According to Gardner (1990:5977) the training, retraining and updating of practising teachers are recognised worldwide as an essential factor in the development of teacher quality. Teachers need to know and understand the subject they are teaching and be able to impart the knowledge to the learners (Car & Kemmis,

1986:31). It is among quality teachers where one expects to get quality education that will give rise to quality learners.

Only 34.3% of the respondents indicated that the skills of the agricultural teacher is good to very good while 65.7% perceived their teachers' skills to be average and below average. Mcintyre, Stirn, & John (1994:70) declare that learning "is more effective if it is supported by a competent, experienced practitioner". The insufficient quality of the teachers as perceived by the learners could have played a role in their poor performance.

3.5.2 Knowledge of teachers in agricultural science

According to Car & Kemmis (1986:44) "teachers' knowledge and good teaching skills provide a starting point for critical reflection".

Teachers' knowledge about a subject can without doubt have a positive or negative effect on the performance of the learners in the subject. Respondents from District 3 perceived that only 34% of the teachers in agricultural science revealed a high to very high knowledge in the subject. A total of 66% perceived that their teachers' disclose a fair to even a poor knowledge in agricultural science. A relative strong indication of a correlation ($r = 0.14$; $p = 0.08$) was found between teachers' knowledge, as perceived by the learners and the actual results (66% failed) in the subject. The poor knowledge of teachers might have contributed to the poor performance of the learners.

3.5.3 Teachers attitude towards agricultural science

Teachers need to have a positive attitude towards agricultural science, if they lack a positive attitude it could lead to a lack of motivation. According to Routledge and Paul (1979:95) a person cannot develop a positive attitude towards something he or she does not like. According to Mahvungu (2004:66-68) only 35% of the respondents perceived their teachers attitude towards agricultural science to be positive to very positive. The majority, namely 65%, indicated that the teachers' attitude only varies between mediocre (30%), negative (20%) and very negative (15%). A highly significant correlation ($r = 0.25$; $p = 0.002$) was found between the teachers' attitude towards agricultural science and the respondents coping strength in the subject, as well as a highly significant correlation ($r = 0.135$; $p = 0.007$) between teachers attitude

and the learners actual results in agricultural science. The more negative the attitude of teachers, the poorer the coping strength and actual results of the learners. When respondents were requested to indicate their teachers' attitude towards all the other subjects, 63% indicated a positive to very positive teachers' attitude and this in comparison with the 35% towards agricultural science. It once again confirms that there is really something wrong in agricultural science.

3.5.4 Teachers enthusiasm in agricultural science

Teaching is one of the most delightful and exciting activities when it is being practice well and with enthusiasm, but if it is executed poorly and without enthusiasm it becomes humiliating and tedious (Matsheke, 1993 as quoted by Mahvungu, 2004:7). It is further a known fact that an enthusiastic person will put more efforts in to accomplish a goal.

Only 43% of the respondents observed that their teachers in agricultural science were enthusiastic about the subject, while 57% observed the enthusiasm of the teachers to be only mediocre and even very unenthusiastic. Highly significant correlations were found between teachers' enthusiasm about the subject and the learners' aptitude in agricultural science ($r = 0.266$; $p = 0.0013$), as well between teachers' enthusiasm and the actual results of the learners ($r = 0.1$; $p = 0.002$). The outcome of this finding again illustrates, that an unenthusiastic teacher has a negative influence on the performance of the learners.

3.6 Where to know?

The above research findings sketches a very dark picture with regard to young peoples (in most case their first contact with formal agricultural education and training) performance in agriculture. The one option is to ignore the problem and refer it back to the Department of Education and the schools. The other option is that agricultural extensionists accept the problem as a challenge and to do something about it, to ensure that a new generation, of young empowered farmers and agriculturists, will emerge, to sustain the Vision of the Sector: "A united and prosperous agricultural sector".

The questions are:

- Where do one start and what can agricultural extension services and agricultural extension workers do to address the problem?

- How can the negative image of agriculture and the poor performance in agriculture among the youth be changed?

- What can agricultural extension services and extensionists do to get the youth interested, educated and trained to become the new generation of farmers and agriculturists?

Before answering these questions it is necessary to explore what is happening in other countries.

4. THE SITUATION AND ACTIVITIES IN SOME DEVELOPING COUNTRIES

4.1 Introduction

There is a tendency today to regard the youth as a problem rather than a resource. Very little is, according to Waldie (2004:6) done, to collect data on rural youth. The youth is seen as a marginal and dependent category, or they are considered a danger to themselves and a problem for society.

A study on rural youth livelihoods (Waldie, 2004:7) indicated that the livelihood strategies of young people differ from those of adults and that the youth are more likely to:

- Undertake enterprises that need heavy and sustained physical effort for example irrigation, tobacco production, stone-breaking or making of bricks;

- Engage in high risk enterprises that offer high and/or quick returns – issues of long-term security are less important to youth than to older people – for example horticulture, and

- Develop opportunistic short-term and niche enterprises, especially where they lack clear rights of control over land or other key assets.

A good starting point according to Waldie (2004:7) will be to encourage young people to become more involved in rural development processes and to recognise the contributions they are already making. Adults need to put aside their prejudices and look again with fresh eyes at the youth.

In many communities today young people still have no "voice" and nothing is done to consider the needs and aspirations of the children (Waldie, 2004:8).
What is happening in other countries?

4.2 Thailand

In 1995 a teacher in one school in central Thailand decided to organise pratical sessions for his students to help them to understand the ecology of rice fields. With the help of a NGO they adapted the "Farmer Field School" approach and apply it at school level. This Approach is today known as the Rural Ecology and Agricultural Livelihoods (REAL) and it is now an international movement. In Thailand REAL Education is today an integrated learning process in which school children explore what is happening on local farms, gaining an understanding of ecology, developing critical thinking skills with respect to environmental, health and social problems (Bartlett & Jatiket, 2004:10). The skills that REAL Education aims to develop are:

- The ability to collect information;
- Analyse problems;
- Conduct experiments and
- To communicate what has been learned.

REAL Education is available to children already in primary schools and secondary schools prefer learners from primary schools that have been using the REAL curriculum, because these learners are able to take a lead in learning activities.

According to one of the teachers (Mrs Khun Posnpan Namrath), younger students quickly develop a strong interest in learning: "They are skilled in presentation, critical thinking and are more creative" (Bartlett & Jatiket, 2004:11). A Grade 11 learner expressed herself with regard to REAL Education as follows:

"I gained a lot from primary school. I have conducted various experiments and I am never afraid to think for myself or make presentations. I like science and I can help my parents and other farmers ……." (Bartlett & Jatiket, 2004:11).

4.3 Honduras and Colombia

The International Centre for Tropical Agriculture (ICTA) have identified in the Honduras and Colombia that the involvement of children, teenagers and young adults in the analyses of their communities can provide a new dynamic to rural development. Young people (Goedkoop, Roa, Sanz, Barahona & Menéndez, 2004: 12) have a natural disposition for innovation and for learning new tools, that can help them to create viable options to remain in the country side. The program allows the youth to be involved in the analyses of local agricultural problems and it has created a sense of belonging as well as awareness of opportunities to change their environment. The projects that they are involved in exposed them to other important aspects namely:

- The development of self-confidence.
- Communication skills.
- The ability to work in groups.
- Use of computers for analyses of data.
- Leadership skills.

Teachers learned that the youth are:

- Sensitive and committed to environmental conservation.
- Willing to innovate and to experiment with new ideas.
- Able to work together on research projects.
- Acting as a link and means of communication helping parents and the community to adapt to a fast-changing world.

4.4 Tanzania

In Tanzania and specifically in the Batati district, FARM-Africa introduced an Agricultural and Environmental Education project where the primary schools are seen as catalysts for change. At district level officials from the Ministries of Education and Culture, Agriculture and Food Security and the Department of Lands, National Resources and

Environment have been appointed on the projects advisory committee. FARM-Africa currently concentrates on building the capacity of teachers to use an approach known as "Discovery Learning". In the approach the inspiring and motivation of children is regarded as important as the transfer of facts. It recognises that the children bring to the classroom their personal experience of agriculture and nature as well as parents instructions on agriculture and nature and from information heard on the radio. The most important change is that classroom presentations by teachers shift from a teacher-centred approach to a learner- centred approach. Another very important link that has been reinforced is by asking local farmers with special skills, or who are known for good farming practices, to demonstrate it to the children (Odhiambo & Masolongo, 2004:16-17).

4.5 Peru

In the Peruvian Andes communities engaged themselves in a project "Childhood and biodiversity in the Peruvian Andes". This project seeks to ensure that the values of their cultural roots that include a nurturing and protective approach to the earth, plant and animal life will not get lost. The primary objective is to create more balance in the school curriculum and to counter the dominant image of the peasant farmer as an illiterate who simply "scratches the earth" and who will never be able to get on in the world. The school is open to the children's local knowledge and there is balance between traditional and modern knowledge (Castillo & Quenti, 2004:19).

4.6 Kenya

According to Machinga (2004:21) agriculture and rural life is the heart of the Kenyan culture, but there is a trend that young people are loosing interest in farming - experience farming as very negative and flock to the cities.

To counter the problem, the Common Ground Programme (CGP), a local NGO started a Garden School Project called the Pathfinder Academy in 2002. The goal of education at Pathfinder Academy is not to master various disciplines but the mastery of one self. The Academy provides children with knowledge and skills related to land, soil and water management. Children practise at home what they have learned in school. They then use their new skills to teach the community how to

produce food and they have managed to earn an income by selling the produce from the family garden (Machinga, 2004:21).

4.7 South Africa

In South Africa there are some initiatives going on with regard to the youth and their involvement in agriculture. The National Department of Agriculture recently (September 2005) launched a National Agricultural Education and Training Strategy with the vision "an accessible, responsive, quality agricultural education and Training". One of the important goals is "to improve the image of agriculture as a career livelihood choice".

In the Limpopo Province the provincial Department of Agriculture committed itself to "support mentoring and experiential learning for the youth" as one of their strategic goals (Department of Agriculture, Limpopo Province, 2004/2005). The Department of Education in the Limpopo province is according to Moela (2006) involved in the Integrated Food Security Nutrition Programme (IFSN). The main aim is to establish food gardens at schools, train educators, school governing body members and learners in the establishing and managing of the gardens. There are also examples of initiatives between government departments and NGO's.

According to the Gauteng News (February 2003), Gauteng schools have joined hands with NGO's specialising in farming to help poor and disabled people to grow their own vegetables as well as to establish food gardens hosted in the backyards of schools. The food gardens are also supported by the provincial Department of Agriculture, Conservation, Environment and Land Affairs. These projects are however not linked to the curriculum of the school. It can however play an important role to change the image of agriculture among the youth, a starting point for the emerging of a new generation of farmers and agriculturists.

In the Eastern Cape the provincial Department of Agriculture is engaged in the so-called 4 – H Youth clubs, concentrating specifically on garden competitions with the youth (Xauke, 2006). It is well known today that 4–H Youth clubs which was started in 1900 in the United States of America played an enormous role in assuring that boys and girls have the opportunity of being artists as well as workers; of being

service bearers to the world, as well as being profit takers for themselves. It is therefore an educational process affecting the habits of workmanship, individual thought and behaviour (Kelsey & Hearne, 1963:37).

Some schools in South Africa started their own projects such as the Piet N. Aphane Secondary School in the Limpopo Province (Fourie, 2006:3). The School established a vegetable and fruit tree garden with the support of an organisation Food and Trees for Africa. Learners performed certain tasks during the week in the gardens and according to the principal, the learners preferred to work in the gardens. More important however is that elements of the garden work are linked to the curriculum for instance the marketing of the products. This project is again a good starting point to get the youth engaged and interested in agriculture.

To summarise:

- Throughout the developing and other countries there is a tendency to get the youth involved in agriculture

- It became clear that the youth do not really see agriculture as a viable proposition to further their career

- In most countries agriculture has a negative image among the youth and as being found by Mahvungu (2004) Grade 12 learners, who stands on the brink of starting their career, perform very poor in agricultural science as a subject.

5. THE ROLE OF AGRICULTURAL EXTENSION SERVICES TO DEVELOP A NEW GENERATION OF FARMERS AND AGRICULTURISTS

Based on the recorded findings in the Limpopo Province and also in other developing countries, the following assumptions could be made to shed light on the role of the Agricultural Extension Service to develop a new generation of farmers and agriculturists.

5.1 The role of the agricultural extension service (organisation)

The agricultural extension service (organisation) should:

- Accept the challenge to change the negative image of agriculture among the youth and get involved and initiate agricultural programmes for the youth

- Create and establish coordination and collaboration structures and linkages between all role players in youth development (education and training in agriculture) programmes. These structures need to be in place at provincial, municipality and district level and should include farmer organisations. The provincial departments of Agriculture need to take the initiative for instance to form a provincial Agriculture and Training Forum (AET).

- Make sure that agricultural education and training programs are implemented and available from primary school level upwards. These programmes must be developed and presented to create an environment, which is stimulating enough for children to develop their abilities and satisfy their interests (Vernon, 1986:8). According to Vernon (1986:8) it is also important that the child must be happy at school, that his/her life develop from day to day with a feeling of achievement, being understood and appreciated and that he/she has the opportunity to express his/her creativeness and artistic abilities.

- Develop and make agricultural education and training programmes available at Agricultural college level for agricultural teachers. These programmes can be presented during school holidays and should include at least 50% practical hands-on training activities on at least NQF Level 5. It could even be a learner ship at level 5 and where the teacher can go back to the school and implement what has been taught (Agricultural colleges to take the initiative).

- Enable the extension worker to perform his task with the necessary funds and equipment and the creation of a pleasant working environment (not the top-down approach of down loading of projects and programmes that are not the responsibility of an extension worker)

- Empower the extension worker by means of in-service training programmes to improve his/her agricultural and extension knowledge and skills (and therefore their abilities)

- Develop and implement agricultural summer and winter school programmes (skills programmes) for learners and teachers in agricultural science at Agricultural colleges and departmental research stations.

5.2 The role of the extension worker

The extension worker should:

- Be an enthusiastic agricultural extension worker (an enthusiastic person promotes enthusiasm among the people he/she works with)

- Make him or herself available to participate and support agricultural youth programmes

- Make sure that he/she is empowered to participate and support agricultural youth programmes. To be empowered one needs to be willing and able to do the job. Willingness is a characteristic within oneself and if one is willing you can become able by upgrading your knowledge and skills in agriculture and extension through further education and training

- Participate fully in structures and linkages that are available in the region and/or district that coordinate youth programmes in agriculture. If the structures and linkages are absent – form them!

- Identify and get farmers that can play an important role in youth programmes and to specifically change the image of agriculture among the youth. These farmers need to make their farms and on-farm activities available for demonstration and practical training of learners and teachers.

- Assist agricultural teachers or other teachers responsible for agricultural related programmes at school level in the provision of practical training programmes and visits to farming activities in the area, specifically where the school does not have a farm component attached to it.

- Participate in the development and implementation of agricultural summer and winter schools (during the school holidays) for learners

and teachers at Agricultural colleges and departmental research stations. The role that the previous so-called "Veldskool" or "Nature school" played should be investigated again. For instance it played a very important role to expose the youth to agriculture and extension workers presented the program. Although "Veldskool" programmes are still available today, agriculture does not form part of the program anymore and the learners are mostly exposed to game farming and nature conservation (Burger, 2006).

6. CONCLUSION AND RECOMMENDATION

The importance of the agricultural sector to the South African economy cannot be overestimated. What South Africa and many developing countries in the world need, is the development of a new generation of farmers and agriculturists to ensure a united and prosperous agricultural sector. In many countries in the world the image of agriculture among the youth is however negative and they show a lack of interest in agriculture.

The performance of learners doing agricultural science in Grade 12 is very poor and in a research study Mahvungu (2004) found that 66% failed the final exam.

There is a total lack of practical training in agricultural science at Grade 12 level and 87% learners experience the training to be too theoretical. The majority of respondents also perceived their teachers' attitude towards the subject to be negative, their knowledge to be insufficient and that teachers are not enthusiastic about the subject. All these findings had clearly a negative effect on the learners and contributed towards their poor performance.

In many countries the youth is seen as a marginal and dependent category but indications are that the youth need to be encouraged to become involved in rural development processes.

Examples of a change in attitude towards agriculture by the youth are found in a number of countries where specific programs have been implemented, namely REAL Education in Thailand, ICTA program in the Honduras and Bolivia and the CPG program in Kenya. The majority of these programs were initiated and implemented at primary school level.

In South Africa a number of uncoordinated projects at school level have been implemented. Very few have been implemented at primary school level. The successful projects are those where the school initiated it with the help of NGO's.

The National Agricultural Education and Training Strategy could play an important role to form a platform for coordination and collaboration of agricultural education and training programmes.

The challenge to develop a new generation of farmers and agriculturists cannot be left to the Department of Education alone; it needs participation of all role players. The extension services and the extension worker could and should play a more prominent role. This "new" role includes aspects such as the formation of coordinating structures and linkages, participation in agricultural projects for learners, development of new programs for learners at all school and college level.

An enthusiastic and empowered agricultural extension worker could play a pivotal role to motivate the youth to participate in agricultural programs and to change their image of agriculture. This is the starting point to develop a new generation of farmers and agriculturists for South Africa.

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