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Redeeming School Agriculture: The Emergence of Competency Based Agriculture Curriculum

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ABSTRACT

The launching of the 8-4-4 system of education in Kenya in 1985 caught education planners by storm, promising to transform and manage the curriculum to be practically and innovatively oriented in meeting the changing demands of society. While it heralded, a revitalized education system, it failed to tackle the entrenched White-Collar myth in the society, locate the source of sustained funding for a practical-oriented curriculum, and hence its goals and aspirations remain a mirage. Thirty years later, school agriculture remains an empty shell without the elements of practical and problem-solving strategies it is supposed to have. It is not clear as to how or what has caused the erosion of the philosophical foundations of school agriculture, a subject which, at its introduction in 1959, was greeted with optimism on rural transformation and poverty eradication. The target population for the study included individuals and institutions with both primary and secondary information on strategies for practical and vocational curriculum implementation. The study employed a qualitative historical design, purposively sampling 23 secondary schools (92 respondents). Data were gathered through self-administered interviews, school visits, and archival documents, then organized into themes for analysis. Findings reveal that, despite emphasis on practical education, agriculture teaching has become largely theoretical, undermining its vocational and practical relevance.

Keywords: *white-collar, transformation, 8-4-4, Competency-based curriculum, Theoretical, historical research.*

Introduction

Hopes and aspirations of the 8-4-4 education system of education, creating relevancy in the education system by including practical elements in the curriculum to meet reform requirements in schooling is one thing, while eradicating the White-Collar myth which equates education with status in the society remains a different issue [1].The lessons learnt from the 8-4-4 system of education in Kenya relates to what [2] equates with experiences of colonial education in Africa, in which practical subjects were considered relevant for the rural poor children. An analysis of historical data [3], [4] shows that whereas agriculture has been taught in Kenya schools since 1873 with the arrival of missionaries, the teaching of the subject in schools was deeply discriminatory, as it was only taught in African schools in rural areas. This may be one of the reasons why up to now; the subject has remained unattractive to high performing students and more confined to rural schools. A possible reason why the subject has failed to attract bright students. Experiences from different countries [1] have shown the existence of challenges and resistance to implementation to curriculum changes unless the proposed changes meet the wishes of the parents to their children's education. Approaches to implement vocational and practical oriented curriculum seemed to have been disruptive to the status quo since it was not in congruence to the elitists who dominated the economic structure and who viewed vocational and practical education as that of low status. Educational reform, according to [5] cannot ignore the support of all stakeholders. Similarly, curriculum is not constant, but keeps changing and being reviewed and there is need to understand the nature of the society in which the curriculum is provided, the conditions under which they may be open to change and those under which they may resist change, what they are capable of undertaking and what they are incapable of doing.[6] and [7] point out that implementing curriculum reform approaches may be uncomfortable and challenging hence the need for dynamic strategies including relating resources to reform, ensuring that the curriculum responds to the needs of the society and applying the policy reform strategy efficiently without losing the autonomy of decision making by the concerned.

An appropriate approach to educational reform by inclusion of agriculture in the school curriculum must also consider the nature of farming in terms of its attractiveness [8] to the youth, and the time available for change to be realized. There is a concern often witnessed in the hurry to change and reform the education system. This often leads to overloading change upon change and abandoning the reform strategy before having enough time to evaluate and prove their worth. It is significant to note the views of [9] that approaches to school agriculture curriculum change must include changes in methods of delivery. The final outcome of any approach to implement an agriculture curriculum change must set the youth for life by providing them with opportunities for acquiring employable skills which leads to decent work and assisting them to climb out of poverty [10-12].

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This has equally remained a reality with school agriculture being considered a worthy subject in the drive for relevance in education.

The above lead philosophy in support to school agriculture, an analysis of [13, 14] on school agriculture, show that the proponents of school agriculture have often ignored to consider the economic status of the society, the attraction of urban life and white-collar jobs, inadequately trained teachers, lack of relevant resources as well as employment constraints.

Curriculum Reform through School Agriculture

Relevant literature reviewed in this study indicates several approaches having been made in attempt to reform education by including among others, agriculture in the secondary school curriculum. The approaches were due to the perpetual drive for curriculum relevance advanced by different categories of stakeholders. It had been incorporated in the school curriculum through several phases and policy shifts, dating from 1959 when vocational agriculture, emphasizing the teaching of agriculture in a practical manner, was incorporated in the curriculum. This was to counteract the claims that education had become too academic and was not preparing learners for life beyond secondary school gates, a view shared by [15, 16] with regard to youth employment. This view is reinforced by the fact that as a way of escape from rural poverty, the youth are in constant search for better opportunities, irrespective of being armed with the agricultural skills needed in the rural areas. The move was a challenge to creation of relevancy in education and a realization that harnessing the youths' energy, skills and ambitions is of great significance as they are invaluable assets of a nation. Curriculum reforms through school agriculture implemented through improved teaching methods, scope and content of the subject; development of colleges of agriculture and the raising of the technical competencies of farmers can lead to the youth realizing their full potential by gaining respectable employment which in turn leads to poverty eradication, sustainable development, peace and security of a nation [17, 18].

Earlier reform efforts include the 1928 and 1933 recommendations of the *Organization of Agricultural Education for Africans* and the *Directors of Education* in Kenya, Uganda, and Tanzania. These emphasized making agriculture a compulsory and examinable subject, with practical work on individual demonstration plots graded equally with theory [19]. However, despite being made over eighty-five years ago, the reality is that practical agriculture in schools has significantly declined. The persistent demand for a purely academic education in Kenya, rooted in the colonial era, continues to overshadow vocational relevance [20]. Experiences from Ghana highlight the importance of valuing transferable skills—such as problem solving, effective communication, creativity, and entrepreneurial capabilities—that school agriculture could effectively nurture [17].

Challenges to Curriculum Reform through School Agriculture

Analysts note that education has not been meaningfully re-oriented from a purely academic focus to embrace vocational training. Instead, agriculture was simply added to the curriculum without a corresponding shift in educational philosophy. This stems from the fact that school agriculture was never internalized by rural communities as a means of improving their livelihoods.

Rather, it has continued to reflect its colonial and missionary origins, where it mainly served as a pathway for a few gifted rural youth to access clerical and other white-collar jobs [8] (Griffiths, 1968; [11] Callaway, 1971). This view has not changed to this day and has dodged all approaches to make secondary school agriculture fully accepted, and this is evidenced by the subject combinations at Kenya's universities and tertiary colleges' admissions requirements ([18] GoK,1964; [19]GoK, 1972;[20] KNEC, 2004). Whereas the Kenyan Government benefited from the United States Agency for International Development (USAID), the World Bank through the International Development Agency (IDA) for an approach targeting the provision of resources and facilities, this on its own without change in attitude has not made the subject acceptable in the eyes of the youth who prefer an education leading to a fuller life with higher economic and social returns and a release from peasant agriculture ([21] [23] .It may be necessary to establish the extent to which the funding approaches led to tangible curriculum reforms.

Approaches to School Agriculture in the 8-4-4 System of Education

Renewed efforts to mould the curriculum to vocational and practical direction were once again launched in 1984 when the Ministry of Education: Kenya launched the 8-4-4 system of education [22], signaling that the earlier Kenya Vocational Agriculture program (1959–1967), which had expanded to 135 schools by 1984, was in decline [22, 24]. The new system aimed to make the curriculum more relevant by emphasizing practical and vocational training, thereby expanding employment opportunities for school leavers. It was expected that graduates at various levels would acquire both scientific and practical skills necessary for self-employment, wage employment, or progression to higher education. The renewed effort is clear evidence of discard of vocational and practical-oriented courses by the students and parents ([25, 26].

The 8-4-4 system of education reflected the philosophy of experiential learning and provided a foundation for practical agriculture [27, 28]. Its objectives aligned with efforts to make rural secondary education in Kenya more practical and responsive to national development needs. However, despite its intentions, the inclusion of agriculture in the curriculum has achieved little in reforming education. Teaching remains largely theoretical, with emphasis on academic certification rather than the skills, attitudes, and values needed for community development. As [20, 29] Chrisman notes, purely academic education in Africa is still viewed as the primary pathway to social mobility, offering higher occupational prospects, income, status, and prestige. Attempts to implement a sustainable school agriculture curriculum face resistance from elitist educational policies, which resist changes that threaten entrenched interests. This perception, according to [30], dates back to the colonial era, when the children of peasants were expected to remain tied to the land through a practical-oriented curriculum designed to fit them for that status in life.

The Push for School Agriculture through Education Committees

Over the years, Kenyan education authorities have put more trust to solving educational problems and curriculum reform matters through commissions and committees. The growth and expansion of schools teaching agriculture between 1959 and 2012 was guided by policies arising from different education

commissions and committees and approaches from international bodies, including USAID and IDA [31]. An attempt has been made to analyze various syllabuses recommended by different committees and commissions and over the study period in terms of content, objectives, evaluation and examination criteria and their relationships and relevancy to the resources and facilities. This aimed to establish the extent to which agriculture in the school curriculum can prepare students not only for self-employment but also for advancement of knowledge and to reverse the negative perception associated with the subject in the school curriculum.

The committee efforts, a deep-rooted negative attitude toward practical subjects persists among teachers, parents, and students, who often regard them as inferior forms of education. As a result, the provision of resources and facilities becomes inconsequential [32]. School visits further indicate that, although agriculture facilities exist, most institutions rely on the "chalk and talk" method, which, as noted by [33, 34], undermines educational relevance. This trend has been reinforced by policies of the Kenya Institute of Curriculum Development (KICD) and the Kenya National Examinations Council (KNEC), which removed the practical examination paper and replaced real specimens with photographs and diagrams.

This paper analyzes the approaches recommended by various education committees, commissions, and international agreements for integrating agriculture into the secondary school curriculum. It also examines the relevance of resources and facilities to different agriculture syllabuses over time and their implications for education reform. Effective practical-based learning demands rethinking curriculum content, objectives, and the organization of learning activities into coherent themes and goals. Literature shows that when the curriculum is supported with adequate resources, students find learning more engaging and meaningful, which can help address negative perceptions of school agriculture [35].

Theoretical Framework

This paper has examined the approaches to implementing the school agriculture curriculum in relation to societal goals and aspirations [36, 37]. The provision of resources and facilities aligned to the syllabuses and curricula reflects the functionalist theory of Emile Durkheim [38], which views education as a means of transmitting society's norms, values, and skills.

Methodology

This study adopted a qualitative historical design, drawing on interviews and archival records from schools and education offices to examine approaches to curriculum reform through the inclusion of agriculture. Data were described, analyzed, and interpreted with reference to their impact on curriculum reforms. The study also explored the provision of resources and facilities, teaching methodologies, teacher education, and examination strategies relevant to secondary school agriculture. Guided by the foci of historical research—issues, movements, concepts, approaches, theories, and developments [39, 40] (Wiersma)—it covered a broad scope that enabled an understanding of curriculum reform strategies. The research employed unobtrusive methods [41, 42] to investigate processes and events across different times and places, complemented by interviews with key participants involved in designing and implementing reforms. Respondents included former and current agriculture teachers, as well as head teachers who were central to sourcing resources and enacting curriculum policies at the school level.

The study also included former and current Ministry of Education (MOE) officials from the Kenya Institute of Curriculum Development (KICD, formerly the Kenya Institute of Education), whose responsibilities covered resource allocation, curriculum development, evaluation, and funding. Additional sources included archives, schools where resources were provided, libraries, diaries, government plans, newspapers, official curricula, and reports related to resource provision and use. A purposive sample of 26 secondary schools where agriculture was taught during the study period was selected, representing a category of institutions with specific data requirements.

Results and Discussions

A review of related literature highlighted several approaches—ranging from education commission recommendations to international agreements—dating back to the colonial period, all of which influenced syllabuses, curricula, and the provision of resources for teaching agriculture. Analysis of reports and recommendations, combined with school visits and stakeholder workshops, revealed diverse strategies for reforming education through the inclusion of agriculture in the school curriculum.

a) Secondary School Agriculture as a Curriculum Reform Movement

Efforts to integrate agriculture into Kenya's school curriculum can be traced to 1959 at Chavakali High School in present-day Vihiga County. The program began under a 1960 contract agreement between the *International Co-operation Agency (ICA) of the US government* and *Quaker missionaries in Western Kenya* through Earlham College, which provided US $310,685 (Kshs. 2,330,137) for resources and facilities to implement a vocational agriculture program.

Findings indicate that the Kenya Vocational Agriculture Policy (1959–1971)—which included the Chavakali project, USAID, and IDA initiatives—set the initial direction of secondary school agriculture. Before this pilot, there were no clear policies, syllabuses, or facilities for teaching agriculture at the secondary level. The Chavakali program, however, was anchored in a government-approved syllabus, supported by the *Cambridge Examinations Syndicate* and the 1969 East African Examinations Council syllabus. It incorporated project work, field visits, and extracurricular activities, backed by defined resources, equipment, and facilities deemed essential for vocational agriculture.

Analysis of the Chavakali syllabus in relation to facilities, equipment, and resources revealed several key observations. Overall, the syllabus lacked clear objectives, making it difficult for teachers to identify and apply appropriate resources and facilities. Despite this gap, the syllabus was detailed in content and provided adequate coverage for skills acquisition, enabling the use of a wide range of resources and facilities. It also encouraged linkages with stakeholders in the agricultural industry. The following sections of the syllabus were therefore examined with specific reference to resources and facilities.

I. The animal husbandry section was well covered in terms of resources and facilities, although a number of the resources and facilities were beyond the level of the students. This was however an opportunity for the teacher to source for assistance

from competent technicians on how best to use the facilities instead of leaving them go into rot, as found out in this study. Findings of the study shows that several schools failed to initiate viable livestock production projects, and where they were initiated, the emphasis was more for commercial than for teaching purposes.

ii. The crop husbandry section shows relevant correspondence of resources and facilities, and has provided leads to practical teaching for the subject in areas like; land preparation equipment, laboratory equipment and facilities for various aspects of soil studies and crop production practicals. Failure to use crop production facilities would mainly be attributed to the teacher.

iii. The agriculture mechanics section covered wide area of the resources and facilities. It is in this section where a lot of resources which were not relevant to specific sections of the syllabus were provided. It is also in this section where emphasis on funding was directed for facilities such as, tractors and attachments; cultivators, trailers, combine harvesters in some schools and wide range of workshop tools and equipment. Interviews from respondents, on-site visit to schools where resources and facilities were provided, analysis of documentary data shows a complete lack of relating the syllabus to the resources. It is not clear why a secondary school with two hectares of land would need a combine harvester. The findings from respondents show that, the schools which applied to teach agriculture during this period, hoped to benefit from this section through the provision of departmental vehicle, agriculture workshop building and workshop tools, tractors and attachments in disregard of the syllabus. The mis use, the lack of care was more evident in this section; most of this equipment were bought or provided by donor funds. When the donor funds ended, the provision of resources for this section not only ceased but the funding for school agriculture similarly ended.

This study has established a historical mismatch between facilities and different agriculture syllabuses, over the study period as can be seen in (Table 2) which was a much reduced level of resource provision compared to the original resources under Chavakali, USAID and IDA projects. As a guide the syllabus, the learner's needs and the financial capability of the institution should be paramount in selecting the resources and facilities. A review of examination items from the East African Examinations Council and the Kenya National Examinations Council revealed that, although schools were supplied with agricultural tools and facilities, their use was rarely examined. Most questions focused on tool identification or theoretical aspects of maintenance, rather than testing psychomotor skills and practical application. It was therefore illogical to supply costly and specialized equipment only for purposes of identification through photographs.

Findings further show that much of the equipment required the expertise of engineers, mechanics, or specialized technicians in animal and crop husbandry—skills beyond the scope of agriculture teachers trained only in general agriculture. Since it was unrealistic for one teacher to be competent in all areas, and institutions often could not recruit technicians, questions arose regarding both teacher competency and the relevance of the supplied resources to the syllabus. Misuse and underutilization of resources became evident in the remnants observed in several schools: abandoned farm structures, tractors, cultivators, combine harvesters, welders, microscopes, engineering survey equipment, and overhead projectors. Many agriculture buildings—once markers of vocational training—had been repurposed as science laboratories, dormitories, or workshops, while in two of the original seven USAID-funded schools, the farms had been converted into playing fields and staff housing.

The funding strategy was a major contribution to the implementation of practical and vocational agriculture. The study however, shows that the funding needs were not streamlined to meet the various needs of the syllabuses. It was instead directed to the workshops, tools and equipment which remained idle, or misused. There was no funding to reinforce the classroom learning activities and practicals in the school farm such as the purchase of livestock for projects, cropping and field visits which are the vital ingredients in the teaching of practical agriculture. The funding of this vital curriculum areas were left for the Head teachers to decide, a move which generated conflicts and tension between Head teachers and agriculture teachers. In all the schools covered in this study and through other approaches to solicit data on the need for facilities and resources, there has been no mention that lack of funds had affected the teaching of the subject yet nothing could be done without funds. Documentary data cited earlier had revealed that between 1964 and 1970, a total of US $ 2,082,000 an equivalent of Kshs. 15,615, 000 by then was spent by USAID and IDA in the 20 schools alone covering the items, such as staff emoluments, construction of workshops, purchase of tractors, departmental vehicles and stationery and that the 1966-1970 financing for equipment and tuition facilities was US $ 43, 000 or Kshs. 322,500 for the six schools yet no school in the study has complained on luck of financing.

b) Relating the 1964/65 Development Plan to Different Syllabuses, Resources and Facilities

The 1964/65 development plan strongly supported primary school agriculture. The plan emphasized the unique position of agriculture in contributing to rural development and recommended that primary school agriculture forms the foundation for subsequent levels of agricultural education. Some of the implications of its recommendations were the support for the Chavakali, the USAID and IDA programmes for advancing vocational agriculture policies. It further endorsed that the government's sourcing of funds from both the USAID and IDA were in itself a worthy undertaking, considering the fact that this was a subject which in the past had no resources at all and had been withdrawn from the primary school's syllabus in 1962. It is this development plan that advocated for the reintroduction of agriculture at primary school level.

c) Development Plan (1970- 74) and how it Related to Different Syllabuses, Resources and Facilities

The 1970–74 Development Plan, following the USAID and IDA projects, prioritized funding for resources and facilities to support agriculture teaching. It recommended the construction of 75 agriculture workshops in secondary schools, aligned with the 1969 Agriculture Principles and Practices Syllabus. However, the scale of funding proved unsustainable, and no subsequent development plans called for direct funding of agriculture in schools.

Funding levels during this period were significantly reduced compared to the 1959–1969 vocational agriculture program, even though syllabus objectives, content, and methodological

demands remained unchanged. The plan allocated £258,000 (Kshs. 5,160,000) for 75 workshops—about Kshs. 122,857 per school. By May 1974, the MOE disbursed only £14,000 (Kshs. 280,000) to 14 schools (about Kshs. 20,000 per school) for agricultural tools, with earlier beneficiaries receiving more than later ones.

Archival records and respondents confirmed that after the 1970–74 plan, funding ceased, leading to sharp disparities in resources and facilities across schools. As financial support dwindled, motivation for practical agriculture declined, and the subject increasingly became theoretical.

d) The Relationships of the Recommendations of the 1976 National Committee on Educational Objectives and Policies (NCOEOP)

The terms of reference of the 1976 Gachathi Commission were basically to deal with policy. The commission observed that the study of agriculture had become a purely academic exercise aimed at certificate acquisition; this, according to the committee, was uneconomical expenditure by the government. Similarly, the Commission observed that, it appeared the academically weaker students were taking agriculture on the assumption that it would substitute a science subject, while this was not so. Other findings of the Commission was that those who had done agriculture-based training were not given preference on employment opportunities or further training in agriculture, and this affected and defeated the purpose of the subject in schools. Similarly, students who studied technical and vocational subjects were experiencing difficulties in finding employment in their fields of study, whereas at the same time the teaching of practical subjects like agriculture and technical subjects was relatively an expensive investment, which needed to be planned in relation to expected returns. The observations of the commission show and confirm the irrelevance of resources and facilities and that the teaching of practical subjects for purposes of curriculum improvement in education had become inconsequential as early as 1972. On close scrutiny of the report, it is noted that it lacked specific policy recommendations for resources relating to secondary school agriculture.

e) The relationships of the 1981 MacKay Commission to the various syllabuses, curricular and recommended resources.

The Mackay Commission was mandated to recommend how to restructure the education system, with an aim of making it more relevant and responsive to the learner needs. A key requirement was for the commission to review the prospect of giving a chance to school leavers to actively participate in production processes by combining theory with practice. The Mackay Commission recommendations led to a major review of the curriculum in which practical teaching was emphasized.

In the case of agriculture, the commission recommended that:

(I) Agriculture should be taught in all secondary schools in Forms I- II and as an option in Form III – IV, this having been similarly recommended in 1972 by the Bessey commission.

(ii) Make the subject more practical. The agriculture projects which had been optional from the 1959 Chavakali, 1964 USAID and 1967 IDA vocational programme, became an examinable paper at KCSE as from 1985. The agriculture examination structure was reviewed and comprised of:

- Paper I Theory
- Paper II Practical
- Paper III Project

This structure remained operational up to 2004 when a further review removed the practical paper.

The Mackay Commission recommendations widened the catchment area for all schools to teach agriculture by removing restrictions on a strict requirement of at least 2 hectares of land for a school to be authorized to teach agriculture. This approach allowed the town and urban schools to teach agriculture regardless of the facilities, as the subject was no longer confined to the rural schools. The recommendations of this Commission led to a major curriculum the review and an introduction to a new system of education in 1985. The 1985 Agriculture Syllabus, though basically the same in content, had much refined objectives it pointed out, especially topic by topic, unit by unit the specific objectives and tasks the learners were expected to achieve. It was during this commission's deliberations that the Ministry of Education (MOE) released a list of recommended tools and equipment for teaching agriculture (Appendix 1), yet there were no strategies for funding. Evidence from this study show that the subject assumed more theoretical methodology than the desired practical approach. With reference to agriculture, it can be concluded that both the (MOE) list of recommended tools and equipment and the Mackay recommendations remained a wish than a reality.

Visits to the 43 schools in this study provided summarized findings (Table 1) illustrating the relationship between resources, facilities, and the syllabus. Alongside workshops, schools had been equipped with tools and machinery. Documentary evidence and school records show that all ten USAID and IDA project schools received tractors and cultivators; however, most are no longer functional due to lack of maintenance. Interviews with former and current teachers revealed that only seven of the 43 schools adopted a practical approach to teaching agriculture—and notably, these were non-funded schools. Another key finding concerned the role of the school farm as a teaching facility, which showed varying alignment with commission recommendations and syllabus requirements (Table 1).

Table 1: Category of schools visited in-relation to availability and use of agriculture workshop and facilities

Category of school	Number of schools visited	Schools with workshop facilities	Workshops and facilities used in agriculture	Workshops & facilities used for other purposes	Un used workshops and facilities	Schools without workshops and facilities
USAID Funded	6	6	0	6	-	0
IDA/ Kenya Government	5	5	0	4	1	0
Kenya Government Funded	12	7	1	6	-	5
Kenya Government Non funded	20	0	-	-	-	20
Total	**43**	**18**	**1**	**16**	**1**	**25**

Table 1 provides key insights into the state of agricultural facilities in the 43 schools studied. It shows that 25 schools (58%) lacked workshops, and only 13 of the 32 Kenya Government schools (40%) had functional workshops. Notably, none of the 11 USAID- or IDA-funded schools used their workshops for teaching agriculture. Of the 18 workshops across all schools, only one was actively used for agricultural instruction. While the table highlights widespread shortages of workshops and facilities, MoE data indicate that between 1970–1975, the government had planned 82 agriculture workshops and equipment for 96 schools, but this study found no evidence that these targets were achieved. The overall plan was to construct and equip twenty workshops per year. The study shows that this planned expansion for workshops and equipment did not materialize.

An inventory on agriculture workshops and facilities carried out in 1980 by the MoE covering 109 schools teaching agriculture shows that only 45 had workshops and 64 had no workshops, this translates to 58.7% of a figure which also corresponds with the findings in Table 1.

According to documentary data, the plan for workshops provision was between 1963 to 1980, and thereafter the plans for workshops ceased. By 1984, one year to the introduction of 8-4-4 system of education, there were only 150 secondary schools teaching agriculture. From 1985, the number of secondary schools rose to over, 3000. The findings of this study show that there were less than 100 schools with agriculture workshops during this period out of about 3000 schools which were teaching agriculture by 2004.

Table 2: Category of schools visited by availability and use of school farm for teaching agriculture

Nature of farms in schools	USAID schools	IDA/WB Schools	Kenya Government Funded	Kenya Government Non Funded	Total
Schools with agriculture farms	6	5	12	19	42
Schools with Y.F.C. plots	1	1	2	6	10
Schools with demonstration plots	0	0	0	4	4
Schools with commercial agriculture farms	6	5	12	19	42
Schools with KNEC plots	6	5	12	19	42
School farms under Agriculture teacher	0	0	1	4	5
School farms under head teacher	6	5	11	15	37
Schools without school farms	-	0	0	1	1

Table 2 shows that, of the 42 schools with school farms, only 5 schools involved agriculture teachers in managing the farms for teaching purposes, meaning that 88% of school farms are not utilized for agricultural instruction. In these schools, farm management is largely under the control of head teachers, who alone can explain the farms' functions. Further, students are rarely involved in farm activities, except for Form IV KCSE projects, and none of the schools have demonstration plots or Young Farmer's Club plots for practical teaching of agriculture.

Conclusions

The results and the findings confirm that between 1959 and 1974 efforts were made by the stakeholders to provide resources and facilities for education reforms through the inclusion of agriculture in the school curriculum. The resources provided were either outside the syllabus or the teachers could not use them. The magnitude of the cost of the resources demanded could not be sustained. It can further be concluded that the number of schools with what was considered to be relevant resources were less than a half. In schools where the resources were provided, they were either left idle to rot or converted to other uses instead of teaching agriculture. Similarly, the school farm is no longer used for teaching purposes but serves the commercial interest of the schools with the agriculture teacher kept at a distance.

The focus on examination performance has overshadowed the development of skills, values, and attitudes, leaving vocational and practical subjects like agriculture struggling. Consequently, the provision of resources and facilities for school agriculture has often been inconsequential. Analysis of KNEC reports (1999–2000) shows impressive student performance in agriculture despite the absence of practical teaching facilities, highlighting the historical misconception that the teacher alone—through lectures and chalked notes—is the primary source of knowledge, rendering resources and facilities largely irrelevant. As a result, efforts to reform the curriculum by integrating practical agriculture remain largely unfulfilled. This paper recommends that decisive action be taken to define the mission and philosophy of agriculture as a practical subject, ensuring its meaningful contribution to educational reforms. The Ministry of Education should also develop a clear strategy for monitoring and implementing recommendations from various commissions and committees to support sustainable curriculum reform. This will help address the long held notion that the inclusion of agriculture in the curriculum leads to relevancy in education by answering the fundamental questions; relevant to whom, relevant for who, and who should determine relevance in the face of competing interests of the stakeholders.

Appendix 1: The Abridged Version of 1963 Chavakali syllabus

Agriculture Principles and Practices	
(a) Agriculture Background Material	The history of agriculture in Kenya. Importance of agriculture to Kenya economy. Facts and figures from the statistical abstract and District Agricultural Reports. General aspects of tropical agriculture in Kenya. Crops grown in Kenya reserves. Agricultural reference sources.
(b) Animal Husbandry	General management of livestock. Farm records; farm water supply. Suitable housing for farm animals. Detailed study of sheep, cattle, pigs and chickens: Adapted breeds and their characteristics; improvement of local animals by crossbreeding and Artificial Insemination.
Animal health	Detailed study of common diseases. Life cycle of worms; how to de-worm; life cycle of snails; importance of sanitation to humans and animals. Veterinary services available locally.
Government policy on livestock rearing	Vaccination Campaign, Quantitative, Regulations, Artificial Insemination, Rotational Grazing.

(c) Crop Husbandry	Soil types and classification systems. Physical and chemical composition of Kenya soils. Chemical analysis of soil. Relationships between rainfall, soil temperature and plant growth; relationship of season to soil bacteria and availability of nitrogen in growing season.
Soil conservation	Basic importance of conservation to soil fertility; various methods used in soil conservation; filter strips, bench terraces, cut-off drains and grassed waterways. African District Council by-laws, location council rulings.
Principles of cultivation	Soil fertility, the carbon and nitrogen cycles and how they affect fertility. Maintenance of soil organic matter under tropical conditions.
Detailed study of farm crops	(Maize, Coffee, Tea, Beans, Napier grass, Rhodes grass, Lucerne). Improved practices as they relate to seeds, rate and time of planting, rate and time of fertilization and manuring, cultivating and weed control, harvesting. Detailed study of food crops *(*Cabbage, kales, sweet and Irish potatoes, peas, onions, turnips, tomatoes, bananas, pineapples, pawpaw and citrus fruits).
Plant diseases, insects and pests	How various diseases injure the plant; recognition and control; army worms, leaf miner, locust, rusts, blight, antestia, earthworm, eelworm, birds, squirrels and monkeys; use of poison bait, copper sprays, DDT; cultural control; biological control; resistant varieties. Weeds and weed control economics of main Kenya weeds.
Government policy	Regulations concerning importation of scheduled plants; recommendations on varieties for local use.
d. Farm Management: Land consolidation and registration	
Farm planning	How to organize a small holding in such way that it is profitable and efficient in the use of land, labor, building, capital and machinery; government services available; students to map out home farm plans and devise rotations. Credit and its use, sources and conditions for borrowing money. Farmer organization for marketing produces buying supplies, furthering members' education and information.
e. Agricultural Mechanics	
Rope work	Use of local and commercial rope in farm work; tying knots; making a rope halter for home cow.
Concrete work	Proper ratios for mixing cement, sand, aggregate and water. Fencing materials available, cost and relative usefulness.
Wood treatment	Application of various chemicals or preservative to lengthen life of local woods.
Welding	Electric arc and acetylene; introduction to arc and gas welding; construction of simple projects such as trowels, wheel cultivator, bicycle carriers, hinges, etc; economics of repairs vs. spares.

Surveying	Use of transit and eye level, how to set up and operate a transit and eye level with rod to layout contours; and determine percent of slope and establish a gradient for terrace.
Engines	Knowledge of engines parts. Internal combustion engines; knowledge of four cycle principles; the air supply system and how to service an air cleaner; the fuel system and the importance of clean fuel; the internal parts of the engine and their function; the lubrication system and function of oil; value of preventive, maintenance and normal procedures; safety with fuel; and electrical and exhaust system.
Farm mechanics	Use of spanners and mechanics tools description and use of farm machines, description and use of wheel type push cultivators, ox ploughs, grain mills, 2 wheel garden tractors with mower and plough and cultivator attachments, small field size (M-F 35) tractor with plough disc and trailer; instruction in driving technique, care and maintenance.
f. Project work	Each student will be expected to carry a productive project at his home that is one which produces for him income. He will be supervised by the instructor in using improved practices with this projects and will be encouraged to involve himself, along with his parents in various other improvement projects around the home which will not only increase the value of the home but will make life more satisfactory. If this is not possible, project work will be encouraged on school farm.
Miscellany	Along with the classroom instruction and supervised projects there should be opportunities for the students to get outside work experience.
g. Young Farmers Club	Similar organization should be formed to encourage interest; field trips to local outstanding farmers and agriculture industry should be taken when possible; leaders from industry, agriculture departments and farmer organizations should be invited to speak to student groups and broaden their out look.

Source: *EACE 1969*

Appendix 2: Recommended Basic Tools and Equipment for Teaching Agriculture MoE (1982)

Tools and Equipment	Materials	Farm Structures
Fork Jembe	Fertilizers	Cattle Crush (At Least for 2 animals)
Jembe (Hoes)	Various Types of Seeds	Simple Dairy /Milk Shed
Pangas	Insecticides	Poultry House (100 Birds)
Slashers	Herbicides	Pig Sty – 3 Pens (Boar, Sow and Weaners)
Hose Pipe (2 Rolls)	Nematocides	Rabbit Hutch – 2 Pens (Doe and Buck)
Sprinklers (Small Size and Large)	Fungicides	
Rakes (10)	Various Drugs (Common)	
Hand Forks (10)	Accaricides (Samples)	
Sledge Hammer and Wedges (1 Set)	Specimens (Various)	
Flower Pots/Boxes (Various Sizes)	Feeds (Samples)	
Barbed Wire (I Roll)	Various Livestock (Depending on Area)	
Top Bar Beehives & Operator's Kits	Timber (Various Types)	
(2 Sets)	Nails – All Sizes	
Metal Trowels	Soft Board (10 Pieces)	
Plain Wire (1 Roll)	Plywood (10 Pieces)	
Clinical Thermometer (10 Instead of 2)	Staples (All Sizes)	
Crucibles (10 Instead of 2)	Glue	
Work Benches (Carpenters) 22	Varnish	
Wood Vices	Wood Preservatives	
Stools (to fit Workbenches) 45	Charcoal – 1 Bag	
Screw Gauges (5)	Solder 10 Bars	
Grinding Stone	Soldering Fluid/Pate 5 Tins	
Hacksaw Blades	Sheet Metals (Various Gauges)	
Soldering Iron Charcoal -10	Wire Mesh – Various Size 10 Pieces (Usual Size of One Piece (8' x 4')	
Solder Iron Electric 10	Steel Rods (Samples)	
Forge and Bellows -1	Reinforcing Concrete Fine	
Anvils (Large and Small)-5	Sand Fine/Cone	
Tinsmiths Drills (Various Sizes)-1 Set	Ballast – Fine and Course	
Electric Drills (Various Sizes)- Set	Hard Core	
Chisels – 1 Set	Cement	
Wooden Trowels	Lime (Hychoxide of Lime)	
Meter or Foot Ruler (20)		
Block Making Machine 1		
Wooden Hoods		

Bricks Laying Tool Plumb Line & Strings Spirit Levels –Line Levels E.T.C Chisels Hammers (Various Types) Timber /Off Cuts Bolts		

Source: *(MoE, 1982)*

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