

Rethinking Agricultural Education for Sustainable Development in Ghana

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Introduction

Agricultural Education is an applied discipline concerned with the preparation of agricultural workers - including farmers, teachers of agriculture, extension staff, researchers, agribusiness practitioners etc. - to satisfy individual, community and national needs in the field of agriculture and agribusiness. Education in agriculture must be viewed as a continuum of learning from primary through secondary and higher education to continuing adult education both in the formal and non-formal sectors.

While agricultural education is an essential tool for development, the discipline is beset with problems. Maguire (2000) notes that as with so many aspects of development, agricultural education in Africa (and elsewhere) now faces rapid and often perplexing changes in the environments in which it exists. While efforts have been made in sub-Saharan Africa to give the needed support to agricultural education as part of the overall education development program, much remains to be done to enable the discipline respond adequately to new and emerging challenges in the agricultural sector. Jaycox (1997) notes that imports of food aid in Africa are estimated to be rising at 7 to 10 percent annually and estimates that 25% of total food consumption in the region is now imported. If this trend of affairs is not reversed, the International Food Policy Research Institute (IFPRI) estimates that the absolute volume of food imports for sub-Saharan Africa will increase by 2.5 times by the year 2020 (Kazibwe, 1998).

One of the reasons advanced for the poor performance of agriculture in sub-Saharan Africa is the weak system of agricultural education (Oniang'o and Eicher, 1999). Okorley (2001) reported that only 20% of final year university agriculture students surveyed indicated a definite willingness to pursue agribusiness as a self-employment venture because of the poor practical training delivered by the curriculum. He reported that the Heads of Departments of three Faculties of Agriculture in Ghana were of the opinion that the present curricula for teaching agriculture in the universities were not adequate to address the training needs for self-employment in agribusiness.

The current state of affairs, including emerging national and global issues with their impacts on agriculture, call for reform in the way agricultural education is planned and delivered in Ghana. Lindley (1999) notes that the mission of agricultural education in Africa in the 21st Century is to work toward improved, relevant, and effective teaching, research, and extension. To achieve food security for all, the appropriate agricultural information and inputs need to be made available to all the rural farmers. To achieve this, adequately trained professionals willing to work in the rural communities are essential. Agricultural education in Africa must prepare a critical mass of dedicated, well-trained men and women who are properly prepared and committed to achieving socio-economic improvement in their country.

Issues and Concerns

The following points may be noted about agricultural education in Ghana in particular and Africa in general:

- Agricultural education in Ghana has failed to achieve the fundamental goal to interest enough young people in farming as a career. In 1993, 16.04% of all senior secondary school students studied elective agriculture. This reduced to 14.17% in 1994, 12.05% in 1995 and 10.71% in 1996 (WAEC, 1997).
- Most agricultural education institutions are not adequately equipping their graduates with the knowledge and skills needed by employers or by the graduates themselves to

- go into self-employment in agriculture or agribusiness (Okorley, 2001).
- Agricultural syllabuses are still very much theory oriented to the detriment of practical activities for which there is not enough time allocation. Even though recent attempts have been made to improve the vocational content of the curriculum, there is still not a clear-cut vocational agricultural track up to the tertiary degree level.
 - Course delivery or teaching methods have not been adjusted to respond to new challenges and demands for trained manpower in the agricultural sector. For example, pre-service training for agricultural extension agents is devoid of the intensive practical orientation and farmer contact that would promote participatory extension.
 - In some cases curricula have not been reviewed, or where revisions have been carried out the processes have not been participatory to involve all stakeholders. Thus curricula have not been dynamic and responsive enough to accommodate the changing needs of stakeholders. For example, important issues such as HIV/AIDS, mainstreaming gender into agricultural development, the environment, information technology, urbanization, post-harvest losses and marketing are either completely absent or not adequately emphasized in agricultural education in either a theoretical or practical sense.
 - Agricultural education institutions are poorly equipped. Resources such as books and tools for carrying out practical activities are inadequate or sometimes inappropriate. In most cases school farms are poorly equipped, poorly maintained and poorly managed. Especially in view of the supervision that is required for field or practical oriented additions to the curriculum.
 - Some faculties of agriculture are poorly trained, poorly supervised and poorly motivated. Thus they are unable or poorly motivated to effectively facilitate the learning process and are unable to handle agriculture as a vocational subject.
 - In addressing the food security of African countries, attention must be focused on the female farmers. Typically, female children leave school at an earlier age than their male counterparts. Therefore, the curricula at the primary levels must be reformatted to better deliver the agricultural skills necessary for successful farming enterprises. In addition, agricultural extension agents need better training to be able to address the needs of women farmers who typically have little formal educational training.
 - In general, there is inadequate funding for education in agriculture. Presently there is no unit or division within the Ghana Education Service (GES) to solely see to the organization and administration of agriculture in schools and colleges nor at the secondary and primary levels.

Challenges

To address these issues and concerns, the following questions are posed to the reader and should be open to discussion and inputs by all stakeholders in a participatory manner.

- What kind of policy should drive agricultural education in Ghana and/or Africa?
- What type of agricultural education does Ghana need to meet current and future challenges?
- What are the demands for trained manpower in agriculture in both the public and private sector?
- How should agricultural education be improved to meet the current and future challenges so as to be responsive to individual and national needs?

- How should agricultural education be delivered to provide excellent, relevant and cost-effective education in agriculture? How can more skills development be incorporated into the curricula.
- What strategies should be adopted to ensure the sustainability of quality agricultural education programs and what should be the roles of stakeholders in this effort?

Some Fundamental Propositions

The problem of poor performance of agricultural education professionals is associated with agricultural graduates at all levels and may be traced to deficiencies in pre-service or skills oriented training. Pre-service preparation should be soundly carried out to provide a concrete foundation for continuing education in agriculture.

- Agricultural Education should be organized to satisfy the long-term educational needs of learners. This will include farming, extension, teaching, research, agribusiness and other support services, with specific emphasis on gender.
- Government and donors should review current policy and consider a more balanced approach that would include the strengthening of educational institutions where teachers, research scientists and extension staff get their pre-service education in agriculture.
- In addition to emphasizing vocational agriculture, agricultural education should also provide equal opportunities to both genders for training in farming-related and supporting areas such as research, extension, agribusiness, post-harvest, marketing, teaching, etc.
- The curriculum at all levels should be revised and revitalized to reflect current as well as future needs and realities. Programs should be designed to provide the necessary knowledge, skills and practical experience necessary for a successful vocation in agriculture.
- Beyond the primary or junior secondary school, a curriculum in agriculture should not be designed primarily as preparation for the next higher institutional level. Emphasis should be on designing a curriculum that enables students completing the program to make use of the skills to make a living from agriculture, whether production, processing or marketing. Agriculture is a practical subject, so appropriate emphasis must be put on skills development through hands-on experience as expressed in the old adage “Learn to do by doing”. There should be provision for supervised agricultural occupational experience programs (SAOEPs) with emphasis on learning to manage agricultural enterprises as profitable businesses. Learner ownership of projects must be built into all SAOEPs as a way of encouraging students to “learn and earn”. With appropriate numeracy skills, this can be taught at a very young age.
- Critical thinking and problem solving methodology should be integral parts of agricultural education methodology. Learners should be taught *how* to think and not only *what* to think.
- The use of computers and the application of modern distance learning techniques for both formal and non-formal education and has tremendous potential to enrich the learning environment, especially at the tertiary level, and should be given due attention in agricultural education. Better graduate programs which would allow the students to apply the learning to the local environment would become better educators

- in their own countries and less apt to leave for opportunities abroad.
- There must be strong linkages and collaboration between the Ministry of Food and Agriculture (MOFA), the Ministry of Environment Science and Technology (MEST) and the Ministry of Education in matters relating to Agricultural Education. To date, this has sometimes been a stumbling block to agricultural improvement efforts in Ghana.
 - Farmers receive technical information from Extension: Extension should therefore be in tune with farmers. They should be trained to ‘walk the walk and talk the talk’.
 - There must be adequate government funding for education in agriculture. The shortfall in funding can be met by creative planning and including all stakeholders.

Strategies for Improving Agricultural Education

It is important to understand agricultural education from a holistic or systems approach. The various branches of the discipline, how they relate to each other and also to other related disciplines must be clearly understood to enable the design of relevant, appropriate and balanced programs, especially with respect to the technical content, expected outputs, scope and emphasis at various levels of study within programs. Strategies for improving agricultural education will incorporate sound and all encompassing policy; curriculum revision and revitalization; restructuring of the existing systems, partnerships and stakeholder roles in view of sustainability.

Policy Formulation

A national agricultural education policy should be formulated with inputs from all stakeholders to give direction to agricultural education in the country. The policy should clearly outline:

- The purpose and vision for agricultural education in the country
- Guidelines for determining national needs
- The roles of stakeholders and various players, especially in funding for agricultural education in the country
- Guidelines for internal and external linkages and partnerships
- Strategies and guidelines for the development of relevant and responsive curricula
- Guidelines for developing, implementing and evaluating agricultural education programs in the country
- Strategies for encouraging women, in-school and out-of-school youth as well as the physically challenged into agriculture and farming as a business or career, and
- Guidelines for promoting sustainable and environmentally friendly agricultural systems as well as for the production of healthy crops.

Curriculum revision and revitalization

Stakeholder participation should be encouraged in the revision and revitalization of agricultural curricula to make such curricula responsive to changing needs and the complex challenges facing agriculture in world today. As such, it should be more inclusive of gender roles in agricultural production, processing and marketing. It should also take into account current events and issues that are affecting agricultural production such as HIV/AIDS.

Restructuring the Existing System

In addition to curriculum review there is the need for some fundamental re-structuring of the existing system. This would need to start with a team-building and cooperative vision of the participating ministries. Competition for development funding should be eliminated to support this cooperation. Perhaps the development of cross ministry working groups could be developed in view of restructuring the existing educational system.

The Formal Educational System

Primary School Level

At the primary level emphasis should be placed on reforming and delivering the curriculum to develop and nurture interest in the subject and to create in learners a favorable attitude towards agriculture as an important and profitable vocation to which one should aspire. Delivery methods at this stage should include interesting agricultural field trips and visits to successful agricultural enterprises. It should be remembered that many girl children, who are the future food providers of the country, will receive formal education training only to the primary level. Therefore agricultural skills training and critical thinking skills should be an integral component of the curriculum.

Junior & Secondary School Level

At the junior and senior secondary school levels and at the teacher training colleges the emphasis must be on the revitalization of the curriculum and the provision of support systems such as libraries, agricultural tools and implements and excellent school farm and school garden facilities for practical work.

- A model school farm project should be initiated at the primary level and strengthened at the junior, senior secondary school levels and at the teacher training colleges. The purpose of these farms should be to provide support for the teaching of practical agriculture skills, promote a positive image of agriculture and farmers, and to promote interest in farming as a vocation. The model farms must reflect local needs and resources and provide quality training in enterprises that will enable learners to enter the private sector with confidence. The experience of the Farmer Field School of bringing in experienced farmers could be adopted in the schools.
- There is the need to promote school agricultural clubs such as “Young Farmers Clubs”. These could be organized along the lines of the 4-H or Future Farmers of America (FFA) in the USA, Canada, Namibia and other countries, to provide students studying agriculture with opportunities for experience, access to facilities and supplies and opportunities for financing.
- There must be major emphasis on the training of agricultural teachers, including agricultural science teachers, extension agents and vocational agriculture teachers.
- There must be an upgrading of farm institutes and similar institutes at that level to provide vocational training to potential and experienced farmers to a level similar to the current certificate level.

Tertiary School Level

At the tertiary level the existing university institutions must be strengthened in terms of human and material resources to carry out their respective mandates. Emphasis must, however, be on curriculum reform to reflect current and future needs of the country and not solely the professional interests of the faculty. Faculty must be strengthened pedagogically (or andragogically) to effectively facilitate the learning process. They must concern themselves with creatively facilitating adult learning rather than only lecturing to their students. Motivation for creative teaching styles should be promoted and supported by the administration.

The existing agricultural colleges currently run by the Ministry of Food and Agriculture (MOFA), should be upgraded and affiliated to existing universities to offer diploma and degree courses in vocational agriculture. This should be in addition to the current courses targeted at training agricultural extension officers.

The Non-Formal Educational System

Agricultural extension constitutes the non-formal agricultural education system in the country. A unified agricultural extension system is currently in operation in the country through which agricultural extension agents interact with farmers to promote progressive farming. Pre-service agricultural extension training should be carried out at upgraded agricultural colleges and at the existing universities. The curriculum should emphasize vocational agriculture, adult education, communication as well as participatory technology development and extension methodologies.

Regular *in-service* agricultural extension training should be organized for extension staff. This should be based on sound training needs analysis and again focus on skills development with hands-on experiences and not only lectures. Linkages between MOFA and tertiary agricultural institutions should be strengthened to enable university faculty and facilities to be used effectively for training extension agents.

Mid-career training programs such as the one at the University of Cape Coast should be developed in all the universities to rectify previous shortcomings of the pre-service system for agricultural extension agents currently in the system. Such programs should combine participatory classroom learning with supervised experience/enterprise projects (SEPs) in real field settings.

Partnerships and stakeholder roles

Finally it is important to involve all stakeholders in the total development of the agricultural education system to ensure true participation at all levels. The roles and responsibilities of stakeholders should be spelt out and clearly understood by all stakeholders. An example is given in Table 1.

Table 1. Partnerships and stakeholder roles

Stakeholder	Roles and Activities
Government	Policy direction (including land tenure reform policy); Co-ordination; Monitoring and Evaluation; Funding
Educational Institutions	Policy implementation; Program development, implementation and evaluation (including testing and assessment); Proposals for funding and provision of packages such as tax incentives to encourage private sector participation in agricultural education.
Donors	Funding; Advocacy for policy improvement; Pro-active initiatives for change
NGOs	Funding; Advocacy for policy improvement; Pro-active initiatives for change
Private Enterprise	Advocacy for curriculum improvement; Provision of inputs for curriculum reform and revitalization; Funding
District Assemblies	Advocacy for curriculum improvement; Provision of inputs for curriculum reform and revitalization; Advocacy for land tenure reform; Funding
Parents and Guardians	Advocacy for curriculum improvement; Provision of inputs for curriculum reform and revitalization; Funding
Students	Advocacy for curriculum improvement; Provision of inputs for curriculum reform and revitalization; Funding

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