

CHAPTER 5

Education and Training for Agricultural Development

1. Rural development involves the mobilisation and development of the whole range of resources in rural areas within the broader context of national, economic, social, cultural and political advancement, to the ultimate end of improving human living standards. Since agriculture will be for many years to come the basic occupation of the vast majority of the population in developing countries, the improvement of agricultural productivity merits a high priority in national economic planning. The improvement of agriculture, however, is not simply a matter of grafting science and technology on to existing systems of land use. It depends on the active and willing participation of millions of farmers, farm women and other rural people. Agricultural change and development require the mobilisation of human resources through such means as education and technical training, through the provision of cash incentives, and through the creation of the infrastructure essential to a modern agricultural industry - markets, credit, processing facilities and, above all, fair and stable prices for agricultural produce.

2. Agricultural education and training are key elements in the whole process of agricultural change and the achievement of rising levels of rural prosperity. It can function efficiently only if national systems of education as a whole are geared effectively to the needs of development. For this to be realised, changes in the existing systems will almost certainly be needed as will flexibility in planning procedures, to allow for a steady process of adaptation in response to identified needs. And agricultural education and training can succeed in their objectives only when integrated into an overall development programme including incentives, infrastructure, marketing, etc. Such an integrated programme provides the only real hope for rural progress in present conditions of limited resources and great and urgent needs.

TRAINING FOR PRACTISING FARMERS

3. Appropriate training programmes must be developed for farmers at different stages in development, from the illiterate farmer in a subsistence-based system, through the farmer in transitional systems moving towards a cash economy and the

small-scale farmer engaged in specialised types of agricultural production (dairying, mixed farming, horticulture or plantation crops) to the large-scale farmer and rancher. Training can be effective only if the motivation is provided to which farmers will respond. Identifying and meeting the needs of the particular community requires trainers familiar with and acceptable to the people among whom they work. A concentrated approach with the co-operation of the mass media and involving the co-ordinated efforts of all interested organisations may prove in some cases to be the most effective method of operation. This may necessitate the limiting of effort to these specific areas where local traditional attitudes towards farming activities are known to be changing. In these circumstances the process of change can be assisted through demonstrations by farmers on their own farms, the provision of immediate incentives such as marketing facilities, and approaches to family or village groups rather than to individuals. The appropriate means for inducing farmers to experiment with new methods will vary. Sometimes the women of the locality will respond more readily to the challenge to become innovators than will their menfolk, In other cases, the approach to new agricultural practices may best be made through a discussion of the health needs of the community. Once a response to new ideas is evident, short residential courses for local farmers should be provided to reinforce particular themes .

4. Much depends on establishing confidence. The teaching staff must be accepted by the community and the familiar gap between the institutional and the field situation bridged. The selection of suitable staff is vital to the success of the operation and there seems to be a good case for the use of multi-purpose rather than specialist staff in the early stages of a programme among subsistence farmers. This general rule may be varied when activities are undertaken in areas where there exists already a proportion of farmers following more advanced practices. In general, the multi-purpose worker is likely to achieve more at the village level than the single-purpose specialist.

5. The most important characteristic of the good multi-purpose worker is that of maturity and ability to inspire confidence, which in largely traditional societies may well be more important than his depth of technical knowledge. Indeed, highly trained field workers posted to areas of subsistence farming where results will not come quickly can easily become discontented and seek to move elsewhere. On the other hand, inadequate technical training may result in the field worker finding difficulty in identifying the agricultural problems of the area,

so that all multi-purpose workers should be given frequent on-the-job and in-service training to keep them up to date with new techniques. If, as an alternative to the single worker, a team approach is employed, using specialist staff of various disciplines who meet regularly to exchange views, then the number of multi-purpose workers can be reduced. As subsistence gives way to a cash economy, more specialist staff, their numbers governed by the economy of the country and the potential of the area, will be required to back up the multi-purpose worker. At the same time, the necessary infrastructure must be built up in phase with the development of the area; roads, markets and other services must be provided.

THE ROLE OF WOMEN IN RURAL DEVELOPMENT

6. Innovation may often prove more acceptable to women rather than men in a particular area. At the subsistence level, men and women tend to work closely together to make the most of the limited resources available to them. It is, therefore, appropriate to provide training for men and women together in these circumstances. Women because of their important role in agriculture in many circumstances, need to be taught those skills, including basic agricultural skills, which are generally regarded as appropriate for men. They should not be left to acquire these skills informally, as happens frequently at present. In Ghana, for example, women attend farm institutes with their menfolk and learn the techniques of vegetable production as well as the fundamentals of home economics.

7. At the transitional stage, when the farmer is moving towards a cash economy, and in farm settlements, there can be a much less close identification of interests between men and women. This implies a vital need to train women for independent and specialised activities to ensure the provision of enough food in appropriate variety for their families. As farming develops in scale and complexity training should be available to assist farm women to adapt to the changing circumstances and undertake their new and more burdensome semi-independent role.

FARM SETTLEMENTS

8. Farm settlements inevitably involve heavy capital investment. Suggested projects must therefore be fully investigated and planned before implementation; in particular settlements should as far as possible be established in response to a request by farmers and not be forced on them. Settlements

may be of various types, for example emergency settlements, for practising farmers forced off their land by flood or other natural disaster; consolidated settlements, for farmers whose lands were previously fragmented; co-operative farm settlements; settlements for young people without previous experience as farmers; and settlements in which young people work alongside older farmers.

9. A settlement of whatever type involves the creation of a new community. The first problem to be faced is how to help settlement members to live together. This can be assisted by the provision of the basic social services. As well as agricultural training, instruction in simple budgeting, accounting and the use of credit must be given, and also information on the basic rules of health. Nor should the cultural needs of the settlers be overlooked when the development and training programme is prepared. The fate of any settlement scheme rests on a recognition by the settlers that success or failure depends on them individually and collectively, and not on government or other external authorities.

10. Associated with the settlement there must be someone competent to evaluate its activities, preferably someone experienced in social research methodology with an understanding of agro-business. It has been established that a successful businessman who engages in agriculture often shows better returns than a trained agriculturalist who lacks business experience, so that the appointment of an effective evaluator sensitive to the needs of agro-business is of prime importance. Universities can fulfil a useful role by investigating the agro-business principles appropriate to various communities.

THE EXTENSION WORKER

11. The term "extension worker" may be understood as comprising all those agents active in agriculture, home economics and community development who have direct access in an advisory capacity to the farming community.

(a) Initial selection of extension workers

12. Those responsible for the recruitment of potential extension workers must have a clear understanding of the type of student required, and Ministries of Agriculture should play an active role in the preparation of recruitment publicity and the selection of candidates. Official statements should emphasise the attractive career prospects for young people entering agricultural extension work, and governments should ensure that

terms of service are such as to convince potential entrants of the validity of these statements by establishing good salary scales and career ladders which enable a competent employee to rise to the top of his chosen profession without the hindrance of artificial barriers. In the selection of students a wide range of characteristics should be taken into account over and above their academic records. This implies the compilation of as full a profile as possible of each applicant. The process of selection might be assisted were candidates to spend a period of two or three months working under supervision in extension activities. The lack of continuity of staff and high rate of resignations cause concern in many countries; much research is necessary into the underlying causes for this wastage, and selection procedures, whether by examination or recommendation, must be designed to attract those candidates most likely to find the service congenial and rewarding, and remain in it.

13. Discrimination should not be exercised against potential trainees from urban backgrounds. In practice it is likely that very few such candidates will present themselves - in Uganda, for example, only 2% of diploma level staff are of urban origin.

14. The selection of female staff to work at village level may necessitate recruitment from the immediate area. It is unlikely in any case that appropriate candidates will be available under the age of 20 years. Where possible, as is the practice in Uganda, female staff at all levels should enjoy equality with male staff in salaries and conditions of service.

(b) Training in extension techniques

15. Close co-operation must be ensured between those institutions providing formal training and the government departments employing the extension workers. Feedback to the institutions enables appropriate revisions to be made to the courses of training.

16. Initial training must include some familiarisation with the rudiments of social psychology, the learning processes of adults and basic communication skills and techniques, as well as the elements of food science and human nutrition. To this background there should be added instruction in sound agricultural practices (including storage methods) and business management. Students must learn the importance of a study of the social and political aspects of the environment when considering the best means of introducing concepts unfamiliar to the local population such as co-operatives or self-help.

17. In-service training programmes for all extension

workers are essential to progressive and effective development activities. Some in-service training might be carried out on a regional basis, with several countries bringing workers together for short periods to exchange their experiences. Within each country in-service training should be co-ordinated and formalised by all those government agencies involved. Finance should be made available for formal and regular in-service training to be provided for all extension workers annually. The content of the courses should be prepared in consultation with participants, so ensuring relevance to their needs, reinforcing their confidence in their employers and providing the workers with experience useful to them in planning their own future field programmes.

(c) Supporting services

18. Effective extension work relies heavily on a range of supporting services, responsibility for which is usually divided among a number of government departments. Agricultural development work cannot be postponed until all the desirable supporting services have been organised but it will often be found impossible to undertake activities on any large scale before such basic services as the supply of seeds and fertilisers, credit (loans and subsidies), feeder roads and transport are provided, and adequate housing and office accommodation for the extension worker. Other essential services to be developed in conjunction with agricultural activities include co-operatives and marketing systems, processing and storage facilities, crop insurance, social services (health, education, water supplies), the preparation of learning and teaching materials, information and guidance. Finally, the extension worker must feel himself backed by continuous research and evaluation, the results of which are communicated to him regularly by the mass media (especially radio and printed materials) and in-service courses.

INTERMEDIATE LEVEL TECHNICIANS

19. Technicians play a vital role in support of agricultural development programmes, through their work in laboratories, research and experimental stations, animal health departments, inoculations, quarantine and other aspects of disease control, A.I., etc. processing establishments (hides and skins, tea and coffee factories, co-operatives), agricultural engineering workshops, and in survey work. A wide range of such technicians is required to keep the agricultural services operating each specialisation - veterinary, forestry, agriculture - has its own staff, and it is most desirable that a mutual understanding

should be established between these specialists by providing a common basic training for them in the same institutions as the multi-purpose extension workers. An added advantage of this system would be gained from the concentration of training in a limited number of well-founded institutions (with a capacity of about 500 students) rather than its dispersal over a larger number of inferior centres. Commercial interests should be given every encouragement to participate in the work of these institutions.

20. With the exception of the laboratory technicians, for whom a full course of specialised training should be provided separately, all technicians should follow an initial one-year course of basic training common to them and the extension workers. In the second year of a two-year course they would receive training in their specialities, and this would be continued by in-service courses and on-the-job training.

AGRICULTURAL INSTRUCTORS

(a) Existing instructors

21. A large number of teachers of agriculture serving at present in agricultural colleges and farmer training institutions have undergone no training as teachers. Were universities able to provide courses of from six weeks to three months during their vacations to remedy this situation it would be beneficial to the teachers and their students, and also to the university, whose staff would thus be brought into direct contact with the intermediate level teachers. The award of certificates would be an added inducement to the teachers to offer themselves for the courses. It might be that one of the international organisations such as Unesco or FAO would assist in the provision of these urgently needed courses.

(b) Instructors in training

22. Courses leading to a degree in agriculture do not include any guidance on the teaching of agriculture and it is highly desirable that a further course in teaching methods should be followed by all agricultural graduates who will work in colleges or institutes. Regular in-service courses which teachers from colleges or institutes would attend together with teachers of agriculture from secondary schools would facilitate co-operation and an understanding of each other's work.

AGRICULTURAL SCIENTISTS

23. Men and women graduates entering the professional grades in agricultural research, teaching and administration, or in related areas of commerce and industry, form a group of specialists whose training should be highly selective yet flexible enough to enable them to respond to the needs of a rapidly changing society. Indeed, more emphasis should be laid on the study of applied economics and the social sciences in their courses so as to ensure that these scientists have a broad view of current problems and possible methods of tackling them. Opinions vary as to whether the university is the most appropriate institution for this training since the rigid discipline approach of past years is no longer adequate. Instead an integrated approach is needed. On the other hand, the essence of the course is to induce the student to think for himself and respond to unfamiliar situations with confidence and expertise, characteristics which the university is probably best able to inculcate. Encouragement should, therefore, be given to all agricultural faculties and institutions to develop an integrated approach to the discipline.

24. Since students at this level should be inspired towards following their interests into further studies and research beyond the first degree level, it is inappropriate for undue emphasis to be laid on the first degree final examination. Continuous assessment during the whole period of undergraduate study would both provide a better indication of a student's ability, and also encourage him to regard the period after his graduation as an integral part of his overall training. This approach implies, however, the provision of programmes of post-graduate study where a student can spend at least one year specialising in the area of his interest.

POST-INSTITUTIONAL TRAINING

25. When formal training is completed, at whatever level, from that of the multi-purpose extension worker to agricultural scientist, in-service training and on-the-job training must start. At the higher level, research institutes employing young graduates should be located whenever possible close to institutions of higher learning so that assistance from experts of the highest calibre is most easily obtainable. The most critical point in the career of any young man or woman comes immediately after they leave the training institution and begin work, when they begin to apply in practice what they have acquired in training.

situations. During this early period they will inevitably make mistakes and go through times of depression and a sense of failure. It is at this time that they are most in need of kindly and sympathetic guidance and support from older and more experienced colleagues. The responsibilities of supervising such newly qualified staff should be given to persons capable of continuing the process of training. The vital aspect of building up a competent, contented and progressively-minded agricultural staff at all levels has been much neglected in the past, to the detriment of many programmes.

NATIONAL COUNCILS OF AGRICULTURAL EDUCATION AND AGRICULTURAL RESEARCH

26. National councils of agricultural education or agricultural research depend for their effectiveness on the interest and activities of the members which they attract. Councils, therefore, should have a wide representation of interested ministries, research institutes, and all levels of agricultural education, without becoming unwieldy in numbers. They should be able to meet at least twice a year, preferably outside the capital city at various educational institutions so that members can see a cross-section of agricultural teaching situations.

27. National councils of agricultural research being advisory bodies only, cannot ensure that their recommendations become policy, but if they improve their status until they earn the same respect as bodies such as medical research councils, then they can anticipate that their influence will lead to positive results.

AGRICULTURE IN SCHOOLS

28. Children in primary schools cannot be trained for a career in agriculture and should not be given vocational training in agriculture as part of their school curriculum. A general introduction to rural life through environmental studies may positively influence their attitudes in some measure. At the age of 15 or 16 years, prevocational training becomes appropriate through a programme designed to help the pupils to appreciate the potential of farming and related occupations.

29. At secondary school level, agriculture must be handled as a topic of real concern to students and not relegated to the status of one or more examination subject. An enquiry might usefully be undertaken into the teaching of agriculture in secondary schools in some developing countries. This would seek to identify particular schools which have been most

successful in teaching the subject in order to define the circumstances and methods which lead to success. The results of such an enquiry could be of great benefit to many member countries.

30. Practical agriculture has been used too often in the schools as a form of punishment, when, for instance, a pupil is instructed to weed a portion of the school garden as a penalty for unpunctuality. This can only develop a negative attitude and should be roundly condemned.

31. It is not easy to remedy past defects in the treatment of agriculture in schools nor to alter entrenched attitudes, yet agriculture is fundamental to developing countries and improved methods of teaching agriculture in both schools and teacher training institutions must be sought in the light of recent changes and developments. A comprehensive reappraisal of curriculum content and teaching methods in schools and, even more urgent, agricultural training institutions, should be undertaken. As part of this project, fellowship awards should be sought to facilitate the production of agricultural textbooks for use at different levels.

32. Interest in farming might be stimulated among young people, especially post-primary and intermediate school students, by the establishment of national or community service programmes in which they could participate as volunteers. Finance and help in the co-ordination of such programmes might well be available from international sources.

PROJECTION OF THE ROLE OF AGRICULTURE IN NATIONAL DEVELOPMENT

33. The need is widely recognised to achieve an intelligent and sympathetic recognition of the importance of the rural sector to national development on the part of the population as a whole but particularly on the part of senior government officials and political leaders. Institutions of agricultural education can play their part by such means as providing special lectures and short courses for influential citizens as well as by arranging agricultural shows and open days at field stations and farms. Senior civil servants and government leaders, through the provision of courses and visits, should be drawn into the habit of seeking on appropriate occasions the advice and assistance of agricultural bodies. Professional associations should endeavour to achieve a wide representation among their members and co-operate with universities, voluntary organisations and other bodies in the promotion of conferences and seminars designed to educate and co-ordinate.

34. A new approach is needed to educate the population as a whole to the importance of agriculture and to an appreciation of the fact that most development plans and economies are entirely dependent in the last resort on agriculture. Urban dwellers must be drawn to the understanding that they are closely linked to the rural areas and that their continued economic well-being is dependent on the development of the rural areas, not least because development in rural areas will influence and relieve the pressures caused by immigration into the towns from the countryside.