



MAKE LEARNING **EASIER**

A GUIDE
for improving
educational/
training
materials

Reprinted. 1992

The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying or otherwise, without the prior permission of the copyright owner. Applications for such permission, with a statement of the purpose and extent of the reproduction, should be addressed to the Director, Publications Division, Food and Agriculture Organization of the United Nations, Via delle Terme di Caracalla, 00100 Rome, Italy.

© FAO 1990

Contents

INTRODUCTION

CHARACTERISTICS OF GOOD EDUCATIONAL MATERIALS

IMPROVING THE USEFULNESS OF EDUCATIONAL MATERIALS

Annex

GUIDELINES FOR PRODUCTION OF

EDUCATIONAL/TRAINING MATERIAL

BIBLIOGRAPHY

Introduction

This booklet provides guidelines for improving the quality of educational and training publications. The guide is based on lessons learned from an assessment of the strengths and shortcomings of a sample of 50 FAO educational and training publications on a variety of subjects, produced by various FAO divisions during the period 1978-1985.

The main objective of this guide is to make practical suggestions for developing sound and pedagogically appropriate materials for use in training programmes and activities organized by FAO. The guide's suggestions are applicable to any type of educational or training publication, regardless of the topic or subject-matter. It focuses on the educational methodology and process of developing and producing materials for more efficient use by both trainers and trainees, thus facilitating the learning process.

The guide includes a brief description of desirable characteristics of good educational and training materials, as well as some suggested measures for increasing the relevance and utility of training materials to be produced in the future. However, the measures suggested in this guide are not exhaustive and, thus, do not constitute a checklist of all the things to do or consider in preparing educational and training materials or publications. Throughout the guide reference is made to certain FAO educational and training publications which are regarded as having particular value for training purposes.

The guide is addressed, in the first place, to FAO staff and counterparts who are called upon to design and produce educational and training materials for use in formal teaching programmes as well as in non-formal training sessions, workshops, seminars and extension activities. The guide may also be of use to national and international institutions, non governmental agencies and individuals concerned with the improvement of teaching and learning for agricultural and rural development.

The guide has been prepared by the Agricultural Education and Extension Service (ESHE) in consultation with various other units of FAO. Any suggestion for improvement should be addressed to the Chief, ESHE, FAO, Rome, Italy.

Characteristics of good educational materials

WHAT IS THE AIM?

The broad aim of any good training materials is to induce and support the learning process that leads to improved on-the-job performance through effecting changes in the knowledge, attitudes, skills and practice of the learners. If agricultural production and the number of small farmers involved and benefiting from the results of agricultural development programmes are to increase, changes must occur in what rural people and those who serve them know, believe in, can do, and are motivated to do. Bringing about these changes, as the situation requires,

should become the aim of FAO pre-service and in-service training, educational and extension programmes. Educational and training materials should be designed to support the achievement of this aim.

WHAT ARE THE CHARACTERISTICS?

Educational and training publications or materials that are likely to lead to effective learning would probably possess most of or all the characteristics listed below.

A clear purpose is stated

A statement of purpose clearly related to the general or broad FAO goals and FAO Division programme or sub programme objectives is made. In addition, an explanation is given of just how the training materials would contribute to achieving the purpose.

A specific target audience is identified

A specific group of target audience is identified whose knowledge, attitude, skills and practice (i.e. behaviour and job performance) are expected to change as a result of the use of the educational or training materials.

• Instructional objectives are specified

The specific instructional objectives of the training supported by the materials or publications are stated in operational terms: What is the trainee expected to know and understand, be able to do, believe in and want to do, on completion of the training activities?

• Presentation is logical and systematic

The contents of the training materials are presented in a logical sequence and are systematically arranged to facilitate learning and understanding. For instance, the contents are presented by starting with general background information and proceeding to more specialized components, or moving from theory to practice or application, and from the less difficult to the more difficult aspects. When a “how-on-do-it” subject is discussed, the presentation is step-by-step, in a chronological order, and is usually followed by examples at a case-study.

• Comprehensive instructional teaching guidelines are given

Guidelines for the use of educational and training materials are given in the form of instructional units or a lessons plan, each conveying a task or theme comprising specific instructional objectives stated in performance terms:

- Specific technical subject-matter contents;
- Individual or group learning exercises;
- Questions and criteria to be used to measure learning achievement;
- Time required for completing the instructional unit;
- Training methods and materials, facilities and aids to be utilized in teaching the unit.

- **The presentation is attractive and readable**

Special attention is given to create an attractive format and layout, and to use a style of writing that is easy to read and understand. The nature and level of content presentation and packaging should be tailored to the educational needs and level of the target audience. Effective learning is facilitated by minimizing the effort needed by the reader to process the information.

- **Relevant supporting materials are provided**

Appropriate teaching aids that may facilitate the use and understanding of given educational or training materials, such as supporting cassettes, diagrams, illustrations and overhead transparencies, are often incorporated as part of the educational package. Other multi-media materials (slide-sound shows, flipcharts, handouts, video, etc.) that could enhance the presentation or delivery of the subject have increasingly been utilized. Bibliographies or further reference materials are also incorporated in good educational materials.

- **Method of use is clearly explained**

Detailed explanation is given on the proper use of the educational training materials, either in the form of a “user’s guide or instructor’s manual” or in a section describing the structure, contents, and method of use of the materials.

- **Materials are properly pre-tested**

At the prototype stage, the educational or training materials are properly pre-tested on a small sample of the expected target audience. Testing covers the relevance and appropriateness of the contents, the acceptability of the format, layout and presentation, and level of readability or understanding of the important messages or information.

Improving the usefulness of educational materials

A review was carried out of a sample of FAO educational publications and materials produced between 1978 and 1985. From this review, eight areas were identified where improvement in the effectiveness of training materials might be effected generally without too much extra effort or cost. Wherever feasible, the proposals are illustrated with examples from, or by reference to, the excellent materials already available in FAO.

It should be noted that most of what is suggested here should take place before a staff member begins writing anything, or a consultant is recruited. Inadequate planning, including a failure to make use of all of the technical expertise and knowledge of educational methodology available in Headquarters and the field, has been an important factor limiting the ultimate utility of FAO’s educational materials.

The emphasis in the measures suggested in this guide is on developing and producing training materials that meet educational needs and problems, especially at the lower-intermediate and vocational levels. Particular attention is devoted to integrating the selected subject-matter, the use of appropriate educational methods and the packaging of teaching materials. The more general measures relating to purpose, target audience, format and organization of presentation are also largely applicable to other kinds of materials intended for more sophisticated audiences. In this connection, it is worth noting that every document prepared has a potential

use in training, either for self-instruction such as reference documents for policy guidance, or student-use manuals for self-instruction by a practitioner, as the basis for seminars for senior staff, or in more conventional group instruction.

The following eight steps should be taken in the planning, development and packaging of training materials in order to enhance their quality and utility:

-
1. Establish the purpose of the materials
 2. Identify the target audience
 3. Decide on the general types of material to be produced
 4. Establish the instructional objectives
 5. Decide on contents, methods and techniques
 6. Organize the presentation of material to facilitate use and learning
 7. Choose an attractive format and writing style
 8. Pre-test prototype materials and plan for the subsequent assessment of experience in actual use of the final product
-

Each of the eight areas is described below in terms of: issues to be addressed, questions to be answered or action to be taken; examples of application drawn from FAO documents; and concluding comments.

1. ESTABLISH THE PURPOSE OF THE MATERIALS

Both the developer and the potential user of training materials need to know why such materials are produced. This question could be answered by:

- checking the Programme of Work and Budget to verify that the broad goals of FAO, as well as the divisional programme and sub programme objectives, are to be supported through educational and training programmes or materials. In the case of field projects, this information is to be found by checking the project document.
- taking the information available from the above sources and thinking through exactly how the material to be produced will contribute to the achievement of the hierarchy of goals and objectives — of the Organization, division programme and sub programme, or field project.
- incorporating the purpose formulated on the basis of the above information into the introductory section of the training materials, written in understandable and operational terms.

An example of a good statement of purpose at the Organization (FAO), programme and project levels is to be found in the preface of an FAO publication entitled *Improvement of post-harvest fresh fruits and vegetables handling*. At the programme (Prevention of Food Losses) and Organization (FAO) levels respectively, the relevant phrases are:

“to prevent post-harvest losses.., thus increase food availability and safeguard food quality”, (...)
“thereby improving the living standards of rural people, especially in developing countries.”

The objective of the project, of which the training publication is a part, is:

“to reduce post-harvest losses of fruits and vegetables by training senior officers in participating countries..., in the technical and practical aspects of post-harvest loss reduction.”

Thus, the training publication is an integral component of a project, the objectives of which fall within the framework of a programme with objectives contributing to achievement of important FAO goals. A simpler but nevertheless satisfactory statement of purpose is to be found in the self- teaching manual in dairy goat production. In the introduction, it is stated:

“The goat is a thrifty animal that could be better exploited by farmers with small holdings, or even landless peasants, for the purposes of improving their families’ diets and livelihoods. Therefore, this manual has been designed to provide basic and fundamental information which would prepare a person to understand.”

What follows this statement is a summary of the topics covered related to the raising of dairy goats. In this case, a jump is made directly from Organization-wide goals to the objectives of the manual itself. It can be assumed, even though this is not stated in the manual, that its objectives contribute to the achievement of those established for the FAO Regional Dairy Development and Training Team for Latin America, of which it is a product.

A clear statement of purpose:

Provides important information needed for establishing instructional objectives;

Gives the potential reader an indication of whether reading the document might be useful for her/him; and

Establishes the legitimacy of the materials within the framework of FAO programmes.

2. IDENTIFY THE TARGET AUDIENCE

The steps of identifying the target audience and establishing the purpose of the materials are so interrelated that they may take place simultaneously. Whether the steps are performed independently or simultaneously, the questions to be answered and guidelines to be followed in the identification of target audiences include the following:

- Is the material intended for use by FAO staff members in an FAO operated training activity, possibly as part of a broader programme?
- Is the material intended for use in government-run institutions or programmes and, if so, is it directed globally or for specific regions or countries?
- What is the intended beneficiary’s present (in-service) post or future (pre-service) post, or vocation?
- What is the usual educational level - of a person occupying the position for which the material has been prepared?
- What are the attitudes and likely levels of existing knowledge, skills and practice of the trainees in the area or subject for which material is being produced?

- The characteristics of the target audience should be recorded in the introduction to the document or package of teaching materials.

In the introduction to the teacher's manual of Food, nutrition and agriculture (a three-volume document issued by FAO in 1984), one phrase provides an example of the adequate identification of a target audience:

“..for pre-service education in two-, three- or four-year post-secondary programmes...”.

It is also noted in the introduction that the manual is intended to be included in the agricultural curriculum of institutions catering to agricultural students in Southeast Asia. Although this is not explicitly stated in any of the three volumes, the nature of the preparation process and the testing of the manual before release suggest that both the general level of student knowledge in the field of nutrition and job requirements were observed and used in determining the content of the course.

Without the satisfactory identification of the target audience, there is no basis for designing teaching materials appropriate in terms of content, nature and level of presentation. All too often, teaching materials have unclear and insufficient specifications of their target audience, or have too many potential audiences.

3. DECIDE ON THE GENERAL TYPES OF MATERIAL TO BE PRODUCED

Deciding on the general type of material to be produced involves thinking through the purpose for which a particular audience is to be addressed. The purpose should be linked with a type of material that is likely to be the most appropriate. Alternative pairings of requirements and materials should be considered, and a decision should be made, and subsequently reconsidered, on the general type of material to be produced.

Alternative pairings of requirements and materials:

- Senior officials and sophisticated audiences, who may need training but would not find the “training” label acceptable, may be provided with policy guidance by means of reference documents with good executive summaries, or seminars in which packages of overview materials are used.
- Undergraduate and postgraduate university, and upper intermediate-level audiences, may be effectively reached through reference documents and modern-style textbooks. These are at least partial teaching materials packages, which provide learning objectives and student exercises along with their subject-matter.
- Field staff at various levels who need a local source of information for continuous self-training may be appropriately served by concise and clearly understandable instructional or how-to-do-it material presented in the form of a small, easily portable manual.
- The field-level technician — who directly serves the fanner, for ester, herdsman or fisherman — and the trainer of technicians both require a comprehensive and integrated package of teaching and extension materials consisting of subject-matter, visuals and other multi-media kits, and guidance on how to train or convey knowledge and skills to others, especially the primary producers.

Make the decision on the general type of material to be produced, and record it, along with instructions to the reader on how the material is to be used, in the introductory section.

FAO has produced a number of educational/training materials that are good as examples of the types described above.

One good example of a multi-media training package that is aimed at an audience of a fairly high educational level is the WCARRD Follow-up Staff Orientation Seminar materials produced by the ESH Division in 1984. This multi-media training package includes a reference text (reading materials), slide-sound sets, simulation and case-study materials, overhead transparencies, and summary handouts.

Among the many useful materials produced for occasional reference by students and practitioners at the upper-intermediate and higher level of education, the following are noted:

- Tropical and subtropical apiculture, 1986;
- Management of an integrated cotton system to reach small farmers, 1985;
- Communicating with rural women, 1986;
- The management of agricultural schools and colleges, 1985;
- A guide to staple foods of the world, 1984.

An example of a modern-type textbook is the one included in the three- volume textbook/teacher's manual/student workbook set entitled Food, nutrition and agriculture (1984).

An outstanding example of a self-training manual for field staff is the Manual for animal health auxiliary personnel (1983).

FAO produced some well-planned and pre-tested, low-cost multi-media extension and grassroots training materials for rat control and brown plant hopper control campaigns in 1986-87. These were used in the activities of the FAO Inter-country Programme on Integrated Pest Control in Rice in South and Southeast Asia. They are excellent examples of a comprehensive and integrated package approach to the design, development, testing and proper utilization of such materials for motivating and educating small farmers.

Other good training materials in the form of packages of varying degrees of comprehensiveness or single documents serving some of the same purposes include:

- Training skills: a manual for fisheries trainers (nd.)
- A forester's guide for community involvement in upland conservation, 1986
- Self-teaching manual in dairy goat production, 1985.

All too frequently, the preparation of materials begins without adequate thought having been given to meeting different requirements in terms of audience and purpose. The result may be educational or training materials that are ineffective and inefficient in meeting requirements.

4. ESTABLISH THE INSTRUCTIONAL OBJECTIVES

This is the stage in the process of materials preparation at which the writer specifies exactly what is to be learned through use of the materials. To the extent feasible, the objectives should

be formulated in measurable (or at least observable) terms—such as new or improved skills, increased knowledge and understanding and attitudinal changes. The establishment of instructional objectives involves:

- Bringing together a team of subject-matter specialists with the educational know-how to plan and design the instructional objectives.
- Starting from the information generated in identifying the target audience, and determining the training needs (i.e. the gap between ascertained or likely trainee knowledge, skills, attitudes and practice and what is required for acceptable on-the-job performance).
- Translating the identified needs into measurable (or at least observable) instructional objectives for the training, based on or supported by the materials, both for the course as a whole and for each component instructional unit; and stating the objectives in terms of what the trainee is expected to know, and is able and motivated to do.
- Recognizing that the completely satisfactory identification of training needs and the establishment of instructional objectives can take place only on the spot in respect of a particular audience and in preparation for improved performance of the trainee or the target audience. Accordingly, where materials are prepared at the global level rather than at the field project site, potential users/trainers should be told of the need to adapt materials in order to meet locally defined requirements.
- Recording, in the introductory section of the training materials package or document, the instructional objectives at the course level and, at the beginning of each instructional unit, the more specific instructional objectives particular to the unit.

Examples of appropriate instructional objectives are best provided by reference to training materials or documents where the objectives can be seen in the context of the subject-matter content and methods essential to their achievement. Reference is invited to the following FAO documents or materials packages:

- The multi-media extension and training materials for the Strategic Extension Campaigns on Integrated Pest Management subjects produced by FAO project GCP/RAS/10I/NET;
- Food, nutrition and agriculture (the three-volume set — textbook, teacher's manual, and student workbook, published in 1984), which provides instructional objectives for the entire course, for the five subject-matter areas into which it is divided, and for each topic in every subject-matter area;

Training skills: a manual for fisheries trainers, which provides instructional objectives for the entire course in a letter (incorporated in the manual) addressed to potential trainers. It also provides numerous sample statements of instructional objectives appropriate in a variety of fisheries subject-matter areas.

Education or training materials intended for training use, as opposed to casual reference, are highly unlikely to be either effective or efficient in promoting learning unless precise and realistic instructional objectives have been established to guide the choice of content, methods and style of presentation. In the absence of instructional objectives, information is provided in the hope it will be useful. Instructional objectives make it possible to address specific knowledge, skills and attitudinal gaps.

5. DECIDE ON CONTENTS, METHODS AND TECHNIQUES

The basic decision on methods is made when the general type of material to be produced has been determined. Except in the case of the partial or comprehensive materials package, reliance is placed on reading and, possibly (by implication), lecturing. For the training materials package, the instructional objectives are the determinants of content and methods. Guidelines to follow in identifying methods appropriate to achievement of instructional objectives might include the following:

- Begin by recognizing that the adoption of the materials package approach implies that a variety of methods is needed for effective learning.
- Recognize that learning something to the point of being able to do it is most likely to be achieved through exercises involving the trainee in actually doing something, whether that be thinking, speaking or undertaking a manual task. Reading or listening to a lecture are least likely to produce the desired results.
- Choose methods appropriate for the achievement of each instructional objective; there is no such thing as a single method appropriate for an entire training course.
- Provide only the content that is relevant and sufficient for the achievement of the instructional objectives. Do not try to overload the materials with everything there is to know about a subject. Where material beyond immediate needs is included, clearly indicate that it is optional and intended for students whose natural curiosity and abilities prompt them to seek out more of the “why” of a subject.
- Make certain that the methods advocated involve the use of materials and facilities generally available to the target audience. To the extent feasible, prepare and include materials in the package for the use of the instructor and trainees.
- Caution the potential user (trainer) that the materials and methods advocated must be adapted to the particular requirements of trainees so as to avoid the problems of too little or too much information being presented in an inappropriate way.
- In general, place emphasis and provide guidance on employment of participatory training methods and real-life materials, facilities and situations.

The most comprehensive treatment in an FAO publication of training methods, planning organization and conduct of training, is to be found in *Training skills: a manual for fisheries trainers* (n.d.). Extension and training material packages that offer good examples of selection of innovative methods appropriate to the achievement of instructional objectives include the multimedia packages prepared for Strategic Extension Campaigns for the FAO’s Integrated Pest Management (IPM) programmes in Malaysia, Sri Lanka, the Philippines and Thailand.

All of the measures considered in this guide up to now have been preparatory to the crucial decisions on what and how to teach. Advice on how to teach and the supporting materials incorporated in a publication or materials package will be important determinants of whether the trainee acquires knowledge and understanding, new or improved skills, and changed attitudes, or merely memorizes facts — or possibly does neither.

6. ORGANIZE THE PRESENTATION OF MATERIALS TO FACILITATE USE AND LEARNING

The utility of a training materials package to a potential reader is greatly influenced by the manner in which the presentation is organized. Some suggestions that may help in achieving appropriate organization of material include the following:

- Begin the presentation with an introductory note or chapter that clearly states the purpose of the materials, the intended target audience and the general class of materials provided (reference! policy guidance, textbook, materials package, etc.), outlines the content and provides instructions on use by the potential reader or trainer.
- Avoid contradictions between the content of an introductory note or chapter and any foreword or preface.
- Break the content of the entire training course supported by training modules into instructional units with specified periods of time for completing each unit and the total course.
- Include in each instructional unit: a statement of instructional objectives, a summary of content, individual and group learning exercises and associated guidance on the use of these and other training methods; a summary of the main concepts and principles; questions or criteria for student self-evaluation of achievement; and specify or provide relevant reading material handouts; and audio-visual and other learning aids.
- Present the units in a logical order. For example: going from concepts to measures of application and evaluation of impact; or following seasons when agricultural operations are undertaken, so that live teaching situations can be utilized; or in chronological order of actions, as in selecting the site for building and utilizing a fish pond.
- Incorporate a bibliography preferably at the end of the document, or at the end of chapters or instructional units. This is particularly useful where more sophisticated audiences are being addressed — those who need, are likely to have access and the capacity to use such materials.
- Provide supporting materials as appendices, which would contain information supplementary to that required to achieve the instructional objectives.

For examples of the organization of presentation in the form of instructional units, the following materials could be of use:

- The teacher's manual of food, nutrition and agriculture, 1984.
- A forester's guide for community involvement in upland conservation, 1986.

Potential readers need to know why a document has been produced, for whom, and how it is to be used. Irrespective of the general type of document, a logical order of presentation is necessary for understanding and to facilitate the application of learning in practice. The presentation of material in instructional units—integrating technical content, and materials and guidance on methods to convey subject-matter to others — is a prerequisite to effective teaching by those with little pedagogical experience or training.

7. CHOOSE AN ATTRACTIVE FORMAT AND WRITING STYLE

Materials prepared according to the suggestions made earlier in this guide should be suitable in substantive and pedagogical terms for achieving the intended purposes. Concern turns now to what may be described as the style of presentation, the finishing touch in producing materials of the greatest usefulness. Measures that can be taken to attract readers, promote for ease of reading and understanding include:

- Using a format that includes headings and subheadings to facilitate the identification of content and to break up otherwise lengthy passages of printed matter. Care should be taken, however, not to take this to excess. Four levels of headings should be enough to structure the most complex texts, and fewer are often sufficient.
- Combining narrative and illustrations on the same or facing pages so that the latter effectively reinforce the former.
- Accenting content or underscoring points by leaving blank spaces between paragraphs, and employing shadings, colours and different sizes of type. The utility of otherwise good-quality materials is sometimes compromised by attempts to reduce total costs by skimping on layout, illustration and printing expenditures. On the other hand, unwise design choices can lead to the package becoming unnecessarily expensive, and advice should be sought from the publishing service at the planning stage.
- Writing in a concise style, minimizing the number of words and the length and complexity of sentences.
- Avoiding long pages of tightly spaced fine print.
- Using good-quality paper and a process of reproduction that ensures legibility and readability.

Many examples may be cited of FAO materials, presented in an attractive, readable and understandable manner. Reference is invited to a single document that best reflects all the suggestions made above: Soil and freshwater fish culture (1986).

8. PRE-TEST PROTOTYPE MATERIALS AND ASSESS THEIR USEFULNESS

There is no guarantee that materials produced at the global or even project level will be effective in achieving instructional objectives for a particular target audience. Steps such as the following can be taken to increase the likelihood of their being effective:

Before final processing and mass distribution, pre-test the entire training materials package, or its components, in a prototype version, with a number of audience groups as nearly comparable as possible to the target audience. Following the results of the pre testing, modify the materials before reproduction and distribution.

- Where pre-testing is not feasible, and this should be the exception, at least check the materials against a list of desirable characteristics, such as the one appearing at the beginning of this guide.

- Include an evaluation questionnaire with every educational or training materials package distributed, requesting feedback on whether the material was actually used and, if so, the successes and problems experienced and, above all, suggestions for improvement.
- Before reprinting training materials to replenish exhausted stocks, carry out a field survey in order to ascertain the extent to which training publications or materials have actually been used and to learn of any opportunities for improvement.

Pre-testing and post-testing are essential to achieve maximum impact and cost-effectiveness. Both the initial production and reprinting of teaching materials, particularly packages, are costly. The mere fact that large numbers are distributed and requested is not in itself an assurance that the materials are both being used and found effective.

Annex

Guidelines for production of educational/training material

1. GENERAL

The purpose of this note is to amplify Step 7 under the last section of this guide by reminding originators of educational or training material of the need for careful reflection before the first word is committed to paper about the final printed product and how to go about printing it. In the experience of FAO's Editorial Branch, many costly mistakes have occurred because authors and originators have not thought early enough about the implications of what they wished to publish.

These implications include such common practical considerations as format, presentation, typeface, type of illustrations, etc. However, they also include less tangible elements such as the readership aimed at, the type of reproduction and distribution expected and the social and cultural environment of both producers and readers.

This note cannot address all of these and other related issues in depth, many of which have been mentioned in the main guide; all it can do is point the way. Further queries should be directed to recognized specialists in the preparation of the material required. On questions related to production aspects, the Editorial Branch is ready to share its experience gained from seeing through the press a number of titles in the FAO Better Farming Series and the FAO Training Series.

2. PREPARATION OF THE DRAFT

Originators should bear in mind the need to circulate drafts in double spacing and with wide margins. This will allow space for reviewers to comment, a simple convenience all too often overlooked. If the text is prepared on a microcomputer, double spacing should pose no problems. Final text prepared as camera-ready copy should always be single spaced, since "camera-ready" means just that: ready to be photographed prior to plate-making and printing. Alternatively, the camera-ready can be prepared on a desktop publishing (DTP) system — essentially a microcomputer running special software, together with a laser printer — which

gives almost the full range of typesetting possibilities at a cost (and level of personal control) that makes it attractive even for small print runs.

3. THE FINAL PRINTED PRODUCT

For originators in Headquarters, the situation is eased by the fact that a quick call to the Editorial Branch in Publications Division can solve a number of production problems (format, typeface, layout, etc.).

Originators in the field face a more difficult situation, so a little research on the spot before preparing final copy can avoid errors and save work.

For instance, there is no point in planning a complicated publication involving colour, many illustrations and offset printing if there are no colour labs, competent illustrators or modem print shops in the vicinity. In most cases therefore it is advisable to:

- keep the publication simple
- avoid expensive processing
- print only the copies needed.

(a) Simple appearance

Apart from the positive effect it may have on communicating the message, a simple appearance makes everything easier. Clean, typewritten or word-processed text can be as effective as sophisticated typesetting and can often be done, literally, “in-house”. More sophisticated effects can be obtained relatively easily using DTP software and a laser printer.

(b) Reducing costs

Similarly, the use of colour (especially four-colour separation work) can scarcely ever be fully justified. Black-and-white photographs are usually as good at conveying the message, and often line drawings are equally acceptable to a local readership (especially if local talent has been used). Colour work needs expensive machinery and is thus itself inherently expensive.

(c) Limit the number of copies

Manuals lying on a shelf are not doing anyone any good. A realistic idea of the number of copies needed will help to keep production costs under control. Storage can be a problem in some countries (owing to the climate, insects, etc.), so it is usually better to reprint the extra copies needed than to have an excessively large initial print run. In developing countries, printing, being labour- rather than capital-intensive, is relatively cheap. Furthermore, if the suggestions in (a) and (b) above are followed it may be sufficient to photocopy the required copies, especially if the number is small. In this case a format based on an A4 (21 x 29.7 cm) sheet size will probably be the easiest to copy; at a pinch, two AS (each half of the A4 size) can be copied simultaneously on the same sheet of A4 paper.

4. CONCLUSION

Much extra effort can be saved if a few simple steps are followed.

1. It pays to think before writing. Not only does this help to clarify ideas and concepts but it may also save time and expense in the long run.
2. Some kind of inventory of local resources (both human and physical) is essential.
3. Contacts with specialists can avoid problems later. These contacts can be local specialists or professionals (editors, educators, graphic art ists, etc.), or divisions at FAO Headquarters (e.g. AGO, ESH, GIP).
4. The latter group may be able to provide information or material relating to earlier attempts to achieve the same aims. After all, there is no point in reinventing the wheel.

Bibliography

FAO. 1983. Manual for animal health auxiliary personnel. Rome, FAO, Animal Production and Health Division (AGA).

FAO. 1984. Food, nutrition and agriculture. Textbook, teacher's manual and student workbook. Rome, FAO, Food: Policy and Nutrition Division (ESN).

FAO. 1984. WCARRD Follow-up Staff Orientation Seminar on Rural Development. Seminar materials. Rome, FAO, Human Resources, Institutions and Agrarian Reform Division (ESH).

FAO. 1984. A guide to staple foods of the world. Rome, FAO, Information Division (GII)

FAO. 1985. Self-teaching manual in dairy goat production. FAO Regional Dairy Development and Training Team for Latin America, Santiago, Chile. Rome, FAO, Animal Production and Health Division (AGA).

FAO. 1985. Management of an integrated cotton system to reach small farmers. A manual. Rome, FAO, Human Resources, Institutions and Agrarian Reform Division (ESH).

FAO. 1985. The management of agricultural schools and colleges. A manual for practical use. FAO Economic and Social Development Series No. 32. Rome, FAO, Human Resources, Institutions and Agrarian Reform Division (ESH).

FAO. 1986. Soil and freshwater fish culture — simple methods for aquaculture. FAO Training Series No. 6. Rome, FAO, Publications Division (GIP).

FAO. 1986. A forester's guide for community involvement in upland conservation (with special reference to the Asia and Pacific Region).. Rome, FAO, Forest Resources Division (FOR).

FAO. 1986. Communicating with rural women — a handbook for population education/communication programmes. Rome, FAO, Human Resources, Institutions and Agrarian Reform Division (ESH).

FAO. 1986. Tropical and subtropical apiculture. FAO, Agricultural Services Bulletin No. 68. Rome, FAO, Agricultural Services Division (AGSM).

(AGS).P40 (n.d.) Training skills: a manual

FAO. 1986. Improvement of post- fresh fruits and vegetables handling. A Manual. Rome, FAO, Marketing and Credit Services (AGSM)

FAO (n.d.) Training skills: a manual for fisheries trainers. Rome, FAO, Fishery Industries Division (FII).