

Texts in Tropical Horticulture, a Difficult Choice

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To most North American horticulturists, tropical horticulture is an "exotic" science. Familiar concepts such as length of growing season, degree of hardiness, winter dormancy, and critical day length are inappropriately applied to many tropical situations. Ignorance of tropical agriculture may lead one to believe that very little research has been done in tropical crops. A missionary attitude may prevail: We ought to send some of our horticulturists down there to show them how. These attitudes and beliefs are inappropriate in an age when American "know-how" is being widely exported.

Fortunately, awareness of the tropics as a place where people live is growing in North America. Governments, universities, and other institutions are looking for meaningful roles in developing the tropics. Professors are visiting, and tropical "experts" are being created all around us. Students are interested in the tropics and tropical agriculture is becoming a part of a well-rounded agricultural curriculum.

Unfortunately, information on tropical horticulture is not easily obtained. The tropics are too diversified in terms of crops, climates, elevations, soils, economic and social systems, and local customs to permit the vast accumulation of facts to be assembled in an easy-to-carry volume. Furthermore, the literature is widely scattered, often in minor journals not found in many North American libraries. The task of synthesizing the literature has been particularly neglected in the tropics.

Despite such problems, important contributions have been made to horticulture in the tropics and worthwhile books have been published. From such literature a student can gain a perspective of tropical horticulture in general, or he can acquire detailed knowledge of almost any crop in particular. He can acquire a broad background to understanding tropical horticulture in terms of soils, climates, economics, etc. But he cannot obtain all of this information from a single text.

Existing books on tropical agriculture, tropical crops or tropical horticulture reflect in general two particular tendencies, the tendency to document the plantation system of agriculture, and the tendency to serve as an encyclopedia of crops. A few also deal with food staples of local peoples.

The excellent two-volume work "*Tropical and Subtropical Agriculture*" (Ochse, Soule, Dijkman, and Wehlburg, 1961. The Macmillan Co., New York, 1446 pp.) reflects the first tendency, emphasis on plantation agriculture (the large-scale production under central management of crops to be used primarily as foods or raw materials in the industrialized countries). The first volume of this set covers very well the background material basic to understanding tropical horticulture, including a chapter on climate and physiography, four chapters on formation, properties, fertility, and management of the soil, and a chapter on general considerations (culture, economics, food value). This latter chapter is so general as to be of little value. Continuing in Volume I, and also in Volume II, are excellent reviews of the status of typical plantation crops (fruits, spices, beverages, oils, fibers, rubber, cinchona, and field crops). One looks in vain for such basic staple food crops as yams, cassava, and other root crops (sometimes mentioned but not discussed). In this respect, the index is of little help because of extensive subindices and sub-subindices under many headings, which confuse the reader.

Excellent background information on tropical agriculture, without detailed consideration of crops, can be obtained from "*An Introduction to Tropical Agriculture*" (Tempany and Grist, 1958. John Wiley & Sons, Ltd., New York. 347 pp.) and from "*Agriculture in the Tropics*" (Webster and Wilson, 1966) Longmans, London. 488 pp.). Both volumes would make good supplementary reading for the course in horticulture.

The encyclopedic tendency in tropical texts is best illustrated by "*Tropical Crops*" (Purseglove, 1968. John Wiley and Sons, Inc. New York. 719 pp.). Although the two published volumes cover only the dicots, a third volume, the monocots, is expected. Extensive coverage of all tropical crops

precludes intensive treatment. However, the more important tropical crops, especially plantation crops, are covered in some detail.

For those who can manage Spanish, "*Fundamentos Botanicos de los Cultivos Tropicales*" (Leon, 1968. Instituto Interamericano de Ciencias Agricolas de la OEA, Turrialba, Costa Rica. 487 pp.) is a complete but concise coverage of the botanical aspects of tropical crops. The book is divided into a brief general section covering origin and domestication of plants, and a longer portion in which plants are considered in terms of their families. From the standpoint of understanding relationships, this is a noteworthy system.

Perhaps the most condensed, practical book covering tropical horticulture is "*Handbook of Tropical and Sub-Tropical Horticulture*" (Mortensen and Bullard, 1964. Agency for International Development, Washington, D. C.). Almost all horticultural crops are covered in at least a cursory fashion. Background information on soils and climates is usually lacking. However, the chapters on control of diseases, weeds and insects are almost up-to-date. Much data is presented in a useful tabular fashion. Photographs and drawings are very good, especially for identification of insects and diseases.

As a complement to a general text, the old but reliable volume "*Tropical Fruits and Vegetables: Their Storage and Transport*" (Wardlaw, 1937. Memoir 7, Low Temperature Research Station, Trinidad; also in Tropical Agriculture 14: various issues, Trinidad) is an admirable introduction to post harvest treatment. crops are arranged alphabetically, and treated comprehensively. For any particular crop, a recent literature review would also be desirable.

The instructor of a course in tropical fruits can count on one very excellent volume, "*Evergreen Orchards*" (Chandler, 1958. Lee & Febiger, Philadelphia. 535 pp.). Available in both English and Spanish, this work treats of fruit crops in a series of chapters covering individual fruits or groups of related fruits. The coverage of major fruits is complete and in depth. However, many minor fruits are not

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mentioned. As a supplement, "*Frutales de Clima Templado*" (Casseres (Editor), 1966. Instituto Interamericano de Ciencias Agricolas de la OEA. Turrialba, Costa Rica. 151 pp.) treats with the principles of growing fruit crops in the temperate (mountain and high plateau) regions of the tropics.

Unfortunately, no adequate single text exists for a course in tropical olericulture. In Spanish, "*Produccion de Hortalizas*" (Casseres, 1966. Instituto Interamericano de Ciencias Agricolas, Turrialba, Costa Rica. 280 pp.) is a valuable start. The book is organized around principles and practices of production, rather than around crops. Also included is useful information on origin and taxonomy of vegetable crops. This is an informative text, but of course limited to Spanish-speaking readers.

"*Vegetable Production in Southeast Asia*" (Knott and Deanon, 1967. University of the Philippines Press, College, Laguna. 406 pp.) is of particular value for its treatment of little-known vegetables of the area involved. Production systems for more familiar vegetables are also given, with special emphasis on experience gained in the Philippines and Taiwan. Introductory chapters on principles (soils, pest control) are supplemented by information on status and needs. The sections on handling, and seed production are particularly worthwhile. This is probably the best text available on tropical olericulture.

Several paperback publications may

be used to round out the course in tropical vegetable culture. "*Vegetable Gardening in the Caribbean Area*" (Winters and Miskimen, 1967. Agricultural Handbook No. 323, U. S. Government Printing Office, 114 pp.) covers most vegetable crops in a cursory fashion. Sections on practices, pests, and diseases are particularly useful and fairly up to date. "*Fruits and Vegetables in West Africa*" (FAO, 1965. Rome, Italy. 259 pp.) is of special interest because of the region involved. "*Tropical Vegetables, Vegetable Growing in the Tropics and Subtropics, Especially of Indigenous Vegetables*" (Terra, 1966. Comm. 54e, Dept. Agric. Research, Royal Tropical Institute, Amsterdam, Holland. 107 pp.) is very interesting because of its encyclopedic coverage of even minor vegetables. I have not seen a list of vegetables as extensive.

I have purposely not mentioned some older works which now need some revision. These should be part of any library on tropical agriculture, however. Not all such worthwhile old-timers are included in the list below:

Macmillan, H. F. 1935. *Tropical Planting and Gardening*. Macmillan and Co., London, 558 pp.

Nicholls, H. A., and Holland, J. H. 1940. *A Text-Book of Tropical Agriculture*. Macmillan and Co., London, 639 pp.

Ochse, J. J. 1931. *Vegetables of the Dutch East Indies*. Arch. Druk. Buitenzorg, Java. 1006 pp.

Popenoe, W. 1920 *Manual of Tropical and Subtropical Fruits*. The Macmillan Co., New York. 474 pp.

Barrett, O. W. 1928. *The Tropical Crops*. The Macmillan Co., New York.

Barrett, O. W. 1930. *Los Cultivos Tropicales*. Cultural, S. A., Havana, Cuba. 525 pp.

Many treatments of specific crops are available, but those are beyond the scope of this review.

Some excellent journals cover tropical horticultural crops. Among these are *Tropical Agriculture* (Trinidad), *Horticultural Abstracts* (East Malling), *Tropical Abstracts* (Amsterdam), and *Fruit D'Outre-Mer* (Paris). A variety of other journals, often in Spanish or Portuguese, are frequently useful.

In summary, no single text of wide applicability is available for the course in tropical horticulture. Problems of generality, incompleteness, or language limit any single publication. A library of the better books may be out of the reach of the student, but the instructor at least should have adequate literature on hand for his own reference. The preparation of a course in tropical horticulture is bound to reflect some confusion due to the immense scope of the field and the lack of a condensed text. A good one-volume text in tropical horticulture, covering both principles, practice, and fruit and vegetable crops, is sorely needed.

New Vegetable Varieties List XVII¹

Compiled by the Garden Seed Research Committee
American Seed Trade Association
and

Edited by W. C. Barnes²
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Sixteen prior lists of new vegetable varieties introduced since 1936 were published in Vols. 63, 65, 67, 69, 70, 75, 77, 82, 84, 86, 88, 90, and 92 of *Proceedings of the American Society for Horticultural Science*, and Vol. 4 No. 1 of *HortScience*.

The following abbreviations are used:
exp. desig.--experimental designation;
orig.--originated at or by;
intr.--introduced by; par.--parentage or parents; char.--outstanding characteristics; res.--resistant to; sim.--similar to or resembles; sel.--selection or selected; sl.--slight or slightly; adapt.--adapted to or adaptation.

BEAN, FIELD

ATLAS-1968-Orig. and intr. by Stokely-Van Camp, Inc. Char. small, white. Res. certain viruses in Columbia Basin. Adapt. wide.

¹Received for publication February 9, 1970.

²Truck Experiment Station.