

Book Review

Lebot, V. **Tropical Root and Tuber Crops: Cassava, Sweet Potato, Yams and Aroids**. First edn., December 2008. Crop Production Science in Horticulture Series No. 17, 432 pages. CAB International, Wallingford, Oxfordshire, OX10 8DE, UK. ISBN 13:978 1 84593424 8, Price: £37.50/\$75.00/€ 60.00.

Root and tuber crops such as cassava, sweet potato, yams, and aroids were probably the principal staple foods of human beings during prehistoric times. In the modern context, however, such crops have significance only in the social and cultural milieu of the poorer sections of the society. Nonetheless, in view of the emerging concerns regarding global food security, climate change, diversion of cereal grains for biofuel production, and the probable export restrictions on food grains by major producers, these crops are likely to regain some of its past glory.

The book under review presents a detailed coverage on all aspects of the four crops mentioned. In my view, this book is a timely replacement of the only available book on the topic: Onwueme, I.C. (1978) *The tropical tuber crops: yams, cassava, sweet potato, and cocoyams*, Wiley, Chichester, UK. It bridges the yawning information gaps in tuber crop production technology and documents the technological breakthroughs achieved over the past three decades. In particular, the post harvest processing and marketing information contained in the book would probably contribute to better exploitation of the tuber crops, which despite their potentials are neglected by many farmers.

Following from the caption, the book has four sections: cassava, sweet potato, yams, and aroids. Each section has separate chapters on origin and history, taxonomy and botany, breeding and genetics, developmental physiology, agronomy, pests and diseases, and post harvest quality and marketing. The chapters are exhaustive and give the readers even minute details. The book changes one's impression that these crops are under-researched. The author himself admits that the available information was so vast that each topic required a separate book and the most difficult part was to condense the information. The reference section

bears testimony for the voluminous literature reviewed and the author must be appreciated for accomplishing this Herculean task.

Although according to the author, the origin of most of these crops is a 'puzzling enigma', enough information was gathered on this and a detailed account presented. This includes the hypotheses of origin as well as spread of all cultivated root and tuber crops. The chapter on taxonomy and botany gives classification, morphological descriptors, related species, and even cytology. Given the large number of morphotypes existing in these crops this information is particularly commendable. The section on 'breeding and genetics' under each crop has 12 subsections covering diverse aspects of crop improvement including transgenic technology and germplasm conservation. Aspects on developmental physiology presented in the book will certainly help researchers to identify the constraints in maximizing crop productivity under different eco-climatic conditions. Information on crop combinations and how to raise tuber crops right from land preparation to harvesting form the focus of the agronomy section under each crop. Nutrient disorders and recommendation on balanced fertilization are particular attractions of this book.

On the biotic constraints, the book gives a detailed account on pests and diseases of tuber crops reported in various producing countries, including minor pests and diseases. This undoubtedly is valuable information as there exists chances of transmission and spread through import of planting materials, tubers, or through germplasm exchange. Clearly, this book makes diagnosis of pests and diseases much easier and is thus useful for the farming community also. However, the most important chapter of the book, I suppose, is the last chapter on post-harvest processing. Presently there is dearth of information on processing of tuber crops,

which is a major cause for their under-exploitation. Improved processing techniques, which will open up opportunities for value addition and ensure better returns to the farming community, are described in detail, besides aspects such as nutritional enhancement through processing. The book also throws light on various processed products and new uses which may be further studied so that these crops can be better exploited. Some of the minor tuber crops like coleus (*Solenostemon rotundifolius*), West Indian arrow root (*Maranta arundinacea*), Queensland arrow root/purple arrow root (*Canna edulis*), yam bean (*Pachyrrhizus erosus*), Jerusalem artichoke (*Helianthus tuberosus*) winged bean (*Psophocarpus tetragonolobus*), *Curcuma* spp. etc., which are being cultivated in different parts of the tropics to a limited extent, are also briefly described in the book, making the book comprehensive in coverage.

I noted certain errors in the text too especially on aspects relating to weed control. For example, while describing weeding in cassava (p56), paraquat and Gramoxone are mentioned as two separate herbicides-Gramoxone, however, is a commercial product containing paraquat. Likewise, glyphosate is mentioned as a highly selective

herbicide, but in reality, it is nonselective in action. The time of spraying suggested also is seemingly erroneous. Pre-emergence herbicides should be applied immediately after planting or within four days (before sprouting of weeds), whereas post-emergence herbicides (paraquat or glyphosate) should be applied as directed spray on the weeds growing between cassava plants. Again, Roundup (glyphosate) is recommended for weed control in sweet potato (p145); being a nonselective systemic herbicide, it may damage this crop, which trails/spreads on the ground.

I appreciate the excellent quality of the drawings on tuber crops, tubers and floral parts. This will be a useful reference book to historians, agronomists, botanists, breeders, physiologists, pathologists, entomologists, food processing engineers, industries, as well as farmers. It can certainly serve as a text book for teaching tuber crop production.

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