

acid contents when compared with the other cultivars. From this research it might be concluded that the 'Festival' cultivar is better in quality as compared to the others. 'Boyne' and 'Killarney' were in between the 'Festival' and 'Prestige'. These ranges of organic acid in different cultivars of raspberry may be helpful to detect misbranding and/or adulterations in raspberry juices and other products. Knowledge of organic acid for a particular cultivar will help fruit processor to save the surplus crop in frozen storage for next year use, keeping in mind the stability of the color.

This research also demonstrates that organic acid composition of the raspberries are more meaningful when cultivars and environmental conditions are known.

Acknowledgement

This manuscript is number ???? of the University of Maine Agricultural and Forest Experimental Station.

References

1. Bushway, R. J., J. L. Bureau and D. F. McCann. 1984. Determination of organic acids in potatoes by HPLC. *J. Food Sci.* 49: 75-81.
2. Bushway, A. A., R. J. Bushway, R. H. True, T. M. Work, D. Bergeron, D. T. Handley and Perkins, L. B. 1992. Comparison of the physi-

- cal, chemical and sensory characteristics of five raspberry cultivars evaluated fresh and frozen. *Fruit Varieties J.* 46:229-234.
3. Coppola E. D. and M. S. Starr. 1986. Liquid chromatographic determination of major organic acids in apple juice and cranberry juice cocktail: Collaborative study. *J. Assoc. Off. Anal. Chem.* 69:594-597.
4. Lenartowicz, W., A. Klimczak, W. Plocharski and J. Zbrozczyk. 1982. The suitability of cultivars of raspberries for quick freezing. II. The chemical constituents and quality of frozen raspberries of new cultivars. *Fruit Sci. Reports.* Skierniewice, Poland. IX: 59-71.
5. Medlicott, A. P. and A. K. Thompson. 1985. Analysis of sugars and organic acids in ripening mango fruits (*Mangifera indica* L. var Keitt) by high performance liquid chromatography. *J. Sci. Food Agric.* 36:561-566.
6. Plowman, J. E. 1991. Sugars and acids of raspberries, blackberries and other brambles. *Lebensm.-Wiss. u.-Technol.* 24:113-115.
7. Ryan, J. and J. Dupont. 1973. Identification and analysis of the major acids from fruit juices and wines. *J. Agr. Food Chem.* 21: 45-49.
8. Spanos, G. A. and R. E. Wrolstad. 1987. Anthocyanin pigment, nonvolatile acid, and sugar composition of red raspberry juice. *J. Assoc. Off. Anal. Chem.* 70:1036-1046.
9. Sweeney, J. P., V. J. Chapman and P. A. Hepner. 1970. Sugar, acid, and flavor in fresh fruits. *J. Amer. Diet. Assoc.* 57:432-435.
10. Whiting, G. C. 1958. The non-volatile organic acids of some berry fruits. 1958. *J. Sci. Food Agri.* 9:244-248.
11. Yang, C. S. T. and P. P. A. Yang. 1987. Effect of pH, certain chemicals and holding time temperature on the color of lowbush blueberry puree. *J. Food Sci.* 52:346-347.

Book Review

The Book of Apples.

By Joan Morgan and Alison Richards, with apple watercolors by Elisabeth Dowle.

The apple is the most widely grown and used fruit in the world, taking an important role in the history of mankind for over 8,000 years. The authors present, in an interesting and readable style, a very complete history of the apple. This attractive book of 304 pages contains 32 beautiful, original

watercolor plates of apple varieties — the blossom cluster, the fruit, fruits growing on the tree, and fruits at maturity. The text also is supported by numerous black and white pictures and drawings.

This is a "must" book for all lovers and students of the apple, and makes fascinating reading. It is a very complete and handy reference to the history and development of the apple, and the origin and description of ancient

Reviewed by Dr. Loren D. Tukey, Professor Emeritus of Pomology, Department of Horticulture, The Pennsylvania State University.

and modern varieties. The book is beautifully printed. The watercolor plates are outstanding!

The well researched treatise is organized into six chapters: The Fruit of Paradise, For Pleasure, Meate and Medicine, For God and Country, Apples for the Few, Apples for the Many, and The Cider Story. The second half of the book contains a Directory of Apple Varieties: an in-depth preface, explanation of keys used, and an alphabetical list of over 2,000 apples and a list of 100 cider apples grown in the orchards at The Brogdale Horticultural Trust in Kent, the largest such collection in the world. Provided for each variety are: name, synonyms, origin and history, fruit description, and growth characteristics. Both ancient and modern varieties are included. Although mainly about the apple in England and Europe, reference is made to Canada and the United States. Additional information includes cooking with apples, fruit growing, names of various apple col-

lections, organizations and sources for nursery trees, and references to over 125 citations and to apple varieties. The index relates to the text and appendices.

Dr. Joan Morgan is an authority on the origin and eating quality of over 2,000 apple varieties in the collection at Brogdale. Alison Richards is an award-winning radio producer and writer. Elisabeth Dowle is a botanical artist and winner of four Royal Horticultural Society Gold medals, including one for the paintings in this book.

The hardcover volume (ISBN 0-09-177759-3) is published by Ebury Press Ltd., Random House, 20 Vauxhall Bridge Road, London SW1V 2SA, in association with the Brogdale Horticultural Trust. It is distributed in the United States by Trafalgar Square, North Pomfret, Vermont 05053. Telephone: 802-457-1911. Fax: 802-457-1913. The price in the U.S. is \$29.95 plus \$3.00 for shipping. The toll free number for ordering is: 1-800-423-4525.

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