

**CONTENTS**

<b>FOREWRD</b>	<b>1</b>
<b>GENERAL FLOW SHEET</b>	<b>2</b>
<b>FRUIT JUICE PROCESSING</b>	<b>3</b>
<b>Buying Procedure of fruit for processing of fruit juice concentrate</b>	<b>3</b>
<b>Harvesting, transportation, washing, grinding, pulping</b>	<b>4</b>
<b>Pressing (expression)</b>	<b>9</b>
<b>Fining, clarification, filtration, separation</b>	<b>16</b>
<b>Thermal treatment of fruit juices</b>	<b>25</b>
Concentration of juices with low initial viscosity	27
Multiple effect evaporation	30
Concentration of juices (fruit pulp) with high initial viscosity	36
Agitated thin-film evaporators	36
Specifications for an evaporator	38
Evaporation control methods	38
Quantities and concentration ratios	39
Cooling, mixing and blending of concentrates	40
<b>Storage and transportation of concentrated fruit juices</b>	<b>42</b>
<b>Juice yield control in fruit juice systems</b>	<b>43</b>
<b>Technique of bottling and filler systems</b>	<b>43</b>
High vacuum filling	44
Filling by counterpressure	45
<b>Chemical preservation of fruit juice drinks and base</b>	<b>46</b>
<b>Sugar syrup for fruit juice drinks</b>	<b>49</b>
<b>De-aeration of juice</b>	<b>50</b>
<b>Thermal treatment of fruit juice and fruit pulp before bottling for preservation</b>	<b>51</b>
Factors influencing final juice quality	53
Carbonating of the fruit juice drink	54
Bottling of still and carbonated juices and juice drinks	54
<b>Plant sanitation</b>	<b>63</b>
<b>A processing system for still drinks (Tetra Pak)</b>	<b>66</b>
Processing of passion fruit	68
Processing of guava	69
Processing of Acerola cherry	70
Processing of banana	70
<b>Capital investment for machinery of a medium-size fruit juice plant including fruit juice concentrate and soft drink bottling plant</b>	<b>71</b>
<b>Labour demand for a medium-size fruit juice plant per shift (8 hours)</b>	<b>72</b>

<b>FRUITS SUITABLE FOR PROCESSING OF JUICE</b>	<b>75</b>
<b>General remarks about fruit components</b>	<b>75</b>
Sugars	75
Polysaccharides	81
Pectic substances	81
Organic acids	81
Proteins	81
Aroma	81
Phenolic substances	82
Vitamins	83
<b>Description of some fruit suitable for processing</b>	<b>84</b>
Apple ( <i>Malus sylvestris</i> )	84
Apricot ( <i>Prunus armeniaca</i> )	85
Banana ( <i>Musa sapientum</i> , <i>Musa paradisiaca sapientum</i> )	86
Blackberry ( <i>Rubus fruticosus</i> )	86
Black currant ( <i>Ribes nigrum</i> )	87
Blueberry ( <i>Vaccinium myrtillus</i> )	87
Cashew apple ( <i>Anacardium occidentale</i> )	88
Cherries ( <i>Prunus cerasus</i> , <i>Prunus avium</i> )	88
Custard apple ( <i>Anona reticulata</i> )	89
Grapes ( <i>Vitis vinifera</i> )	89
Guava ( <i>Psidium guajava</i> )	90
Mango ( <i>Mangifera indica</i> )	91
Passion fruit ( <i>Passiflora adulis</i> )	92
Peach ( <i>Prunus persica</i> )	93
Pear ( <i>Pyrus communis</i> )	93
Pineapple ( <i>Ananas comosus</i> )	94
Pomegranate ( <i>Punica granatum</i> )	95
Quince ( <i>pyrus cydonia</i> , <i>Cydonia vulgaris</i> )	96
Raspberry ( <i>Rubus idaeus</i> )	96
Red currant ( <i>Ribes rubrum</i> )	97
Strawberry ( <i>Rubus rubrum</i> )	97
Tomato ( <i>Lycopersicum esculentum</i> )	98
White currant ( <i>Ribes rubrum</i> )	99
<b>LIST OF SOME EQUIPMENT SUPPLIERS FOR FRUIT JUICE MANUFACTURING</b>	<b>100</b>
<b>REFERENCES</b>	<b>102</b>