

**Short Term Curriculum**  
**for**  
**Preparing Different Mango Products**

**January, 1999**

**Council for Technical Education and Vocational  
Training (CTEVT), Sanothimi, Bhaktapur**

# **PREFACE**

This curriculum has been developed for Technical Schools under the Council for Technical Education & Vocational Training (CTEVT) in the form of short term competency based training package.

This is the first attempt of CTEVT to develop short course of this form. So, feedbacks & constructive suggestions from instructors/trainers are welcomed & gladly included while revising it in the coming days.

I would like to thank Mr. Jeeban Chandra Dahal, Curriculum Expert, CTEVT, who played a pivotal role while developing this form of short course.

My sincere thanks also go to the subject matter experts who helped a lot by giving valuable technical inputs while developing this short course.

I hope every success of this curriculum in the days to come.

**January, 1999**

**Director  
Curriculum Division  
CTEVT**

## **Acknowledgments**

This curriculum has been developed specially for the Technical Schools running under CTEVT with a view to equip trainees with skills & knowledge in the related field of technology/vocation in the form of short term competency based curriculum package.

This is the first endeavor of CTEVT to develop short course in this form. It is hoped that this attempt will pour some drops in the ocean of competency based education provided by CTEVT throughout the country. Feed backs & constructive suggestions on behalf of related instructors/ trainers/implementers are most welcome, gladly accepted, & included while revising this curriculum in the coming days.

I would like to extend my sincere thanks to curriculum division, CTEVT, who gave me a golden opportunity to bear responsibility of coordination of the development of this form of short-term curriculum.

My sincere thanks also go to the subject matter experts who provided valuable technical inputs while developing this form of short course in one or the other way.

I hope every success in the implementation of this curriculum in the days to come.

January, 1999

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Curriculum Expert  
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1. **Aims and Objectives:**

This short course for "Preparing Different Mango Products" is designed to provide trainees with basic skills and knowledge necessary for the preparation of different mango products.

2. **Short Course Description:**

This training program provides task steps, terminal performance objectives and related technical knowledge in all tasks necessary for the preparation of different mango products.

There will be both demonstrations of skills by the instructors and opportunity to practice the skills by the trainees.

Trainees successfully completing this training will be able to prepare mango candy, mada, sukuti, pickle, chatani, crystal/dust, squash, juice, wine and to carryout mango canning in domestic level.

### 3. Task Structure

Tasks	Nature	Total Hours
1. Prepare Mango Candy (Sof)*L)	P	42
2. Prepare Mango Mada (df*F)	P	38
3. Prepare Mango Sukuti (;"s"l^)	P	24
4. Prepare Mango Pickle (crf/)	P	46
5. Prepare Mango Chatani (r^gL)	P	22
6. Prepare Mango Crystal (sl)Fsf)/Dust (w"nfj)	P	27
7. Prepare Mango Squash (:Sjf;)	P	23
8. Prepare Mango Juice (/;)	P	21
9. Carryout Mango Canning (afjtn aGbL)	P	46
10. Prepare Mango Wine (jfO{g)	P	49
	<b>Total Hours:</b>	<b>339</b>

**4. Target group:**

Literate and interested farmers having willingness to invest.

**5. Group size:**

Maximum of 16

**6. Duration:**

339 hours

**7. Medium of instruction:**

Nepali and/or English

**8. Pattern of attendance:**

Regular attendance in classes and practical

**9. Entry criteria:**

Able to read write & having keen interest in vegetable preservation and preparing different mango products.

**10. Follow up suggestion:**

First follow up:	One month after the completion of the training
Second follow up:	Two months after the first follow up.

# 11. TASKS

## 11.1 Task: Prepare Mango Candy (Sof)\*L

Task Steps	Terminal Performance Objective	Related Technical Knowledge
1. Select mango fruit	<p><b>Condition:</b></p> <ul style="list-style-type: none"> <li>• Mango fruit</li> <li>• Water</li> <li>• Knife</li> <li>• Utensils/cooking pot</li> <li>• Heating set</li> <li>• Spoons</li> <li>• Sugar /salt</li> <li>• Clean piece of cloth</li> <li>• Citric acid</li> <li>• Bricks hydrometer</li> </ul> <p><b>Task:</b> Prepare Mango Candy</p> <p><b>Standard:</b></p> <ul style="list-style-type: none"> <li>• All task steps are followed sequentially with patience, care and confidence.</li> <li>• Proper mango fruits selected, cleaned, peeled and cut into appropriate pieces safely.</li> <li>• Made holes on softened &amp; cooled pieces of mango with a needle safely.</li> <li>• Alternate layers of fruit pieces and sugar arranged in a pot carefully.</li> <li>• Appropriate amount of sugar added in proper time as per the tasks steps.</li> <li>• Rate of citric acid maintained as one gram per kg of fruit.</li> <li>• Degree bricks maintained to 75<sup>0</sup>.</li> <li>• Standard quality of candy maintained .</li> <li>• All precaution well followed.</li> </ul>	<ul style="list-style-type: none"> <li>• Selection of Mango fruits for preparing candy.</li> <li>• Concept of candy</li> <li>• Cleaning method</li> <li>• How &amp; why to peel mango</li> <li>• Appropriate size of pieces &amp; cutting into pieces.</li> <li>• Need to soften the pieces with boiling.</li> <li>• Need to cool the boiled mango pieces.</li> <li>• How &amp; why to make holes in the mango pieces.</li> <li>• How and why make alternate layers of fruit pieces and sugar</li> <li>• Why to leave for 24 hours</li> <li>• Cooking process</li> <li>• Need to cover with cloth.</li> <li>• Why and how much citric acid to be added.</li> <li>• Function of sugar .</li> <li>• Concept of degree bricks &amp; how to maintain it as 75<sup>0</sup>.</li> <li>• Standard quality of mango candy.</li> </ul>
2. Clean/wash by water		
3. Peel the fruit		
4. Cut the fruit into pieces		
5. Boil the pieces in water to soften them		
6. Cool the pieces		
7. Make holes in the cooled pieces with a needle		
8. Arrange pieces of the mango in a cooking pot in an alternate layers of mango pieces & sugar		
9. Leave the pot for 24 hours.		
10. Cook the mixture		
11. Add some sugar		
12. Cover the mixture with a clean cloth for 24 hours		
13. Add citric acid at the rate of one gram per kg of fruit		
14. Add sugar		
15. Cook the mixture maintaining 75 <sup>0</sup> bricks		
16. Cover it with a clean cloth for one week		
17. Taste the candy		



## 11.2 Task: Prepare Mango Mada (df\*F)

Task Steps	Terminal Performance Objective	Related Technical Knowledge
1. Select mango for mada preparation	<p><b>Condition:</b></p> <ul style="list-style-type: none"> <li>• Mango</li> <li>• Water</li> <li>• Knives</li> <li>• Steel trays</li> <li>• Sugar/Salt</li> <li>• Potassium Metabisulphite</li> <li>• Clean thin cloths</li> <li>• Bricks hydrometer</li> <li>• Glycerine</li> </ul> <p><b>Task:</b></p> <p>Prepare Mango Mada</p> <p><b>Standard:</b></p> <ul style="list-style-type: none"> <li>• All the tasks steps followed well in sequence carefully and confidently.</li> <li>• Rate of potassium metabisulphite maintained 2400 ppm.</li> <li>• 0.4% sourness and 24<sup>0</sup> bricks (with the addition of sugar) well maintained white preparing mada.</li> <li>• Quality of Mada well maintained .</li> <li>• All precautions are well followed.</li> </ul>	<ul style="list-style-type: none"> <li>• Concept of mada and selecting right type of mango for its preparation.</li> <li>• Why and how to clean the mango.</li> <li>• Peeling &amp; its need.</li> <li>• How to take out stone (sf]of])</li> <li>• How to prepare the pulp for preparing mango mada.</li> <li>• Need and rate of potassium metabisulphite addition.</li> <li>• Concept of sourness &amp; maintaining it at 0.4%</li> <li>• Concept of degree bricks and maintaining it at 24<sup>0</sup></li> <li>• Process of spreading the product in a tray.</li> <li>• Need of covering with a clean and thin cloth.</li> <li>• Process of sun drying.</li> <li>• Need to keep the product in a room for two days.</li> <li>• Cutting into desired pieces.</li> <li>• Tasting mada .</li> <li>• Standard quality of mada .</li> <li>• Storing &amp; precautions.</li> </ul>
2. Clean selected mango		
3. Peel the mango		
4. Take out stone (sf]of])		
5. Prepare pulp (u"bL)		
6. Add potassium metabisulphite at the rate of 2400 pp on.		
7. Maintain 0.4% sourness		
8. Maintain 24 <sup>0</sup> bricks with the add of sugar		
9. Spread the product in a glycerin applied clean steel tray.		
10. Cover the product in the tray with a clean thin cloth .		
11. Dry in sun.		
12. Place the sun dried product in the room for two days.		
13. Cut into desired pieces		
14. Taste the mada		
15. Check the quality.		
16. Store mada.		

### 11.3 Task: Prepare Mango Sukuti (;"s"^L)

Task Steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> <li>1. Select mango for sukuti preparation.</li> <li>2. Clean mango with water.</li> <li>3. Peel cleaned mango</li> <li>4. Prepare 2% salt solution (brine)</li> <li>5. Dip peeled product in the brine.</li> <li>6. Cut the product into appropriate pieces.</li> <li>7. Prepare 1-2% potassium metabisulphite solution/ 40% sugar solution.</li> <li>8. Dip the piece into the solution for one hour/12 hours.</li> <li>9. Spread the pieces in a tray.</li> <li>10. Dry the product in a tray to 135-145<sup>0</sup> F.</li> <li>11. Use dried pieces/store the pieces.</li> </ol>	<p><b><u>Condition:</u></b></p> <ul style="list-style-type: none"> <li>• Mango</li> <li>• Water</li> <li>• Peeling /cutting knife</li> <li>• Salt</li> <li>• Sugar</li> <li>• Potassium metabisulphite</li> <li>• Utensils/trays</li> <li>• Packaging materials</li> <li>• Thermometer.</li> </ul> <p><b><u>Task:</u></b> Prepare Sukuti (;"s"^L)</p> <p><b><u>Standard:</u></b></p> <ul style="list-style-type: none"> <li>• All task steps are followed in sequence with patience, care and confidence.</li> <li>• 2% salt solution, 1-2% potassium metabisulphite solution and 40% sugar solution well prepared.</li> <li>• Dried the product in a tray to 135<sup>0</sup>- 145<sup>0</sup> F.</li> <li>• Standard quality of sukuty well maintained.</li> <li>• All precautions well followed.</li> </ul>	<ul style="list-style-type: none"> <li>• Concept of sukuti and mango selection.</li> <li>• Method of washing fruits.</li> <li>• Peeling &amp; handling peeling knife.</li> <li>• Why and how to prepare 2 % brine.</li> <li>• Why and how to dip mango into brine.</li> <li>• Cutting into pieces &amp; handling cutting knife.</li> <li>• Preparation &amp; need of following solutions : <ul style="list-style-type: none"> <li>• Potassium metabisulphite (1-2%)</li> <li>• Sugar solution (40%)</li> </ul> </li> <li>• Process of dipping.</li> <li>• How to and why spread the pieces in a tray.</li> <li>• Drying and drying temperature.</li> <li>• Use of sukuti and its storage .</li> <li>• Precautions.</li> </ul>

## 11.4 Task: Prepare Mango Pickle(crf/)

Task Steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> <li>1. Select mango for pickling.</li> <li>2. Wash in clean water</li> <li>3. Cut the cleaned mango into pieces.</li> <li>4. Prepare 2% salt solution.</li> <li>5. Dip the pieces into the salt solution.</li> <li>6. Take out the pieces from salt solution.</li> <li>7. Add salt &amp; mix thoroughly.</li> <li>8. Put the salt added mango pieces into a pot and cover it.</li> <li>9. Dry the pot in sun for 4-5 days.</li> <li>10. Remove water from the pot.</li> <li>11. Mix the product with spices &amp; oil.</li> <li>12. Put the product into a bottle.</li> <li>13. Press the product down the bottle to remove air</li> <li>14. Add oil in the bottle so as to dip the product in the oil.</li> <li>15. Tighten the lid &amp; keep for 2/3 weeks in sun frequently for sun drying.</li> <li>16. Add oil (if necessary)</li> <li>17. Seal the lid as the pickle processing is complete .</li> <li>18. Store in cool /dry place.</li> </ol>	<p><b><u>Condition:</u></b></p> <ul style="list-style-type: none"> <li>• Mango fruit</li> <li>• Water</li> <li>• Cutting knife</li> <li>• Salt</li> <li>• Utensils/bowels/water pots</li> <li>• Bottles with lids</li> <li>• Eating oil</li> <li>• Sealing materials (Candle)</li> </ul> <p><b><u>Task:</u></b> Prepare Mango Pickle</p> <p><b><u>Standard:</u></b></p> <ul style="list-style-type: none"> <li>• All the tasks steps are followed sequentially with patience, care and confidence.</li> <li>• Removed the air from the bottle by pressing the product into the bottle carefully and completely.</li> <li>• All the product inside the bottle dipped well in the oil.</li> <li>• The bottle with pickle sealed well.</li> <li>• Sealed pickle bottle stored in cool and dry place.</li> <li>• All precautions well followed.</li> </ul>	<ul style="list-style-type: none"> <li>• Concept of pickle &amp; selection of mango fruit for pickling.</li> <li>• Washing fruits.</li> <li>• Cutting &amp; handling cutting knife.</li> <li>• How to prepare 2% salt solution.</li> <li>• Why to dip mango pieces into brine.</li> <li>• Handling mango pieces.</li> <li>• Through mixing of salt and mango pieces.</li> <li>• How to put mango pieces into a pot and covering it.</li> <li>• Importance of sun drying.</li> <li>• How to remove the water came out of the mango pieces.</li> <li>• Concept and ingredients of spices.</li> <li>• Need to remove air from the bottle with pressing.</li> <li>• Need of complete dipping of mango pieces into oil</li> <li>• Tightening the lid &amp; need to frequent sun drying the bottle.</li> <li>• Process of sealing bottle.</li> <li>• Precautions.</li> <li>• Need to store in cool &amp; dry place.</li> </ul>

## 11.5 Task: Prepare Mango Chatani (r^gL)

Task Steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> <li>1. Select raw mango .</li> <li>2. Wash selected mango</li> <li>3. Cut mango into pieces.</li> <li>4. Prepare 2% salt solution</li> <li>5. Dip mango pieces in salt solution.</li> <li>6. Prepare chasni (sugar solution)</li> <li>7. Filter chasni in thin cloth.</li> <li>8. Put mango pieces in the filtered chasni.</li> <li>9. Cook in mild heat till half of solution evaporates.</li> <li>10. Prepare/add spices in the cooked solution.</li> <li>11. Cook with frequent stirring to make it thick liquid.</li> <li>12. Boil some oil in a separe pot.</li> <li>13. Put Jyano (Hjfgf) Methi (djyL) etc. in the hot oil.</li> <li>14. Add the hot oil mixture in the thick chatani liquid.</li> <li>15. Sterilize bottle..</li> <li>16. Fill the bottle with chatni in its warm condition.</li> <li>17. Seal/store the bottle.</li> </ol>	<p><b><u>Condition:</u></b></p> <ul style="list-style-type: none"> <li>• Raw Mango</li> <li>• Water</li> <li>• Cutting knife</li> <li>• Salt</li> <li>• bowl/utensils/bottle</li> <li>• Sugar</li> <li>• Thin cloth</li> <li>• Heating set</li> <li>• Spices</li> <li>• Stirrer</li> <li>• Mustard oil</li> <li>• Jyano/Methi</li> <li>• Sealing materials etc.</li> </ul> <p><b><u>Task:</u></b> Prepare Mango Chatani (r^gL)</p> <p><b><u>Standard:</u></b></p> <ul style="list-style-type: none"> <li>• All task steps were followed in sequence with patience, care and confidence.</li> <li>• Two percent salt solution carefully prepared.</li> <li>• Bottle were sterilized.</li> <li>• Filling chatani in the bottle done in warm condition of chatani.</li> <li>• Filled bottle well sealed .</li> <li>• All precautions well followed.</li> </ul>	<ul style="list-style-type: none"> <li>• Selection of mango for the preparation of chatani &amp; concept /use of chatani.</li> <li>• Washing method</li> <li>• Preparation of 2% salt and water solution.</li> <li>• Dipping technique .</li> <li>• How to prepare chasni &amp; its concept.</li> <li>• Using thin cloth for filtration.</li> <li>• Putting mango pieces in filtered chasni.</li> <li>• Method &amp; duration of cooking.</li> <li>• Concept of spices, types of spices, preparation of spices and its importance.</li> <li>• Need of frequent stirring &amp; concept of thick liquid.</li> <li>• Boiling oil.</li> <li>• Need to add Jyano and Methi.</li> <li>• Handling hot oil.</li> <li>• How to sterilize bottles &amp; its need.</li> <li>• How &amp; why to fill bottle with warm chatani.</li> <li>• Method of sealing bottles &amp; storing .</li> <li>• Precautions.</li> </ul>

## 11.6 Task: Prepare Mango Crystal (sl)Fsf)/Dust (w"nfl)

Task Steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> <li>1. Select mango for preparing crystal/dust</li> <li>2. Clean select mango .</li> <li>3. Peel the cleaned fruit.</li> <li>4. Cut cleaned mango into 4-5 mm thick and 30-40 mm long pieces.</li> <li>5. Prepare 2% potassium metabisulphite solution.</li> <li>6. Dip mango pieces into the solution (5) for 10 minutes.</li> <li>7. Take out the pieces from the solution.</li> <li>8. Dry the pieces in sun /solar heater.</li> <li>9. Grind dried pieces (if desired) into small crystals.</li> <li>10. Pack the product in plastic bags.</li> <li>11. Store packed mango crystal/dust.</li> <li>12. Follow precautions.</li> </ol>	<p><b><u>Condition:</u></b></p> <ul style="list-style-type: none"> <li>• Mango</li> <li>• Water</li> <li>• Water pot/Utensils</li> <li>• Trays</li> <li>• Peeling knife</li> <li>• Cutting knife</li> <li>• Potassium metabisulphite</li> <li>• Grinder</li> <li>• Plastic bags.</li> </ul> <p><b><u>Task:</u></b> Prepare Mango Crystal/dust (sl)Fsf/w"nfl)</p> <p><b><u>Standard:</u></b></p> <ul style="list-style-type: none"> <li>• All task steps carried out in a sequential order following all necessary precautions confidently, carefully and safely.</li> <li>• Mango pieces made with the size of 4-5 mm thick and 30-40mm long.</li> <li>• Two percentage of potassium metabisulphite solution made correctly..</li> <li>• Mango pieces dipped into 2% potassium solution for 10 minutes.</li> <li>• All precautions to be followed are carefully followed.</li> </ul>	<ul style="list-style-type: none"> <li>• Concept of mango crystal and dust and selection of mango for this purpose.</li> <li>• Washing mango in water.</li> <li>• Handling peeling knife.</li> <li>• Cutting mango into pieces and size of the pieces.</li> <li>• Process of preparing solution and calculation.</li> <li>• Need to deep mango pieces into potassium methabisulphite solution.</li> <li>• Drying : <ul style="list-style-type: none"> <li>• Sun drying</li> <li>• Use of solar heater.</li> </ul> </li> <li>• Process of grinding.</li> <li>• Process of pakaging &amp; its need.</li> <li>• Storing</li> <li>• Precautions.</li> </ul>

## 11.7 Task: Prepare Mango Squash (/;)

Task Steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> <li>1. Select mango for preparation of mango squash.</li> <li>2. Clean the fruits .</li> <li>3. Peel the cleaned mango fruit.</li> <li>4. Removed hard core (sf]of])</li> <li>5. Cut mango into small pieces.</li> <li>6. Stir it continuously for some time.</li> <li>7. Filter the juice.</li> <li>8. Heat the juice for 15 minute at 75<sup>0</sup>- 80<sup>0</sup>C.</li> <li>9. Cool the product to 40<sup>0</sup>C.</li> <li>10. Prepare brine (chasni)</li> <li>11. Prepare mixture of the juice, sugar solution and citric acid.</li> <li>12. Filter the mixture.</li> <li>13. Add 2-3 grams of potassium metabisulphite.</li> <li>14. Fill a bottle with the mixture.</li> <li>15. Seal the bottle.</li> </ol>	<p><b><u>Condition:</u></b></p> <ul style="list-style-type: none"> <li>• Mango</li> <li>• Water</li> <li>• Peeling / Cutting knife</li> <li>• Stirrer</li> <li>• Filter</li> <li>• Match</li> <li>• Thermometer</li> <li>• Sugar</li> <li>• Citric acid</li> <li>• Potassium matapisulphite</li> <li>• Bottle</li> <li>• Scaling materials</li> <li>• Heating Set.</li> </ul> <p><b><u>Task:</u></b></p> <p>Prepare Mango squash.</p> <p><b><u>Standard:</u></b></p> <ul style="list-style-type: none"> <li>• All task steps are well followed in sequential order with patience, care and confidence.</li> <li>• Juice heated for 15 minutes at 75<sup>0</sup>-80<sup>0</sup>C</li> <li>• Chasni prepared correctly.</li> <li>• Rate of potassium metabisulphite maintained 2-3 grams/kg.</li> <li>• Bottle scathing properly done.</li> <li>• All precautions will followed</li> </ul>	<ul style="list-style-type: none"> <li>• Concept of mango squash and its uses.</li> <li>• Selection of mango for squash preparation.</li> <li>• Cleaning fruits .</li> <li>• Peeling process.</li> <li>• Removing hard core (sf]of])</li> <li>• Cutting mango into pieces.</li> <li>• Process of stirring .</li> <li>• How to filtrate liquid.</li> <li>• Process of heating .</li> <li>• Measuring temperature as well as reading watch.</li> <li>• Process of cooling .</li> <li>• Concept of chasni &amp; its function.</li> <li>• Preparing mixture.</li> <li>• Need of potassium metabisulphite.</li> <li>• bottle filling</li> <li>• Sealing the bottle</li> <li>• Precautions.</li> </ul>

## 11.8 Task: Preparing Mango Juice (/;)

Task Steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> <li>1. Select mango for Juice preparation.</li> <li>2. Clean selected mango.</li> <li>3. Carryout peeling</li> <li>4. Remove inner hard stone (sf]of))</li> <li>5. Cut into small pieces</li> <li>6. Stir well the pieces in a bowl</li> <li>7. Filter the juice</li> <li>8. Add water, sugar and citric acid</li> <li>9. Heat for some time to warm the juice (don't boil)</li> <li>10. Sterilize bottle in boiling water.</li> <li>11. Fill the bottle with juice.</li> <li>12. Seal the bottle.</li> </ol>	<p><b><u>Condition:</u></b></p> <ul style="list-style-type: none"> <li>• Mango</li> <li>• Water</li> <li>• Peeling knife</li> <li>• Cutting knife</li> <li>• Stirrer</li> <li>• Bowl/Utensils/bottles</li> <li>• Filter</li> <li>• Sugar</li> <li>• Citric acid</li> <li>• Sealing materials</li> <li>• Heating set.</li> </ul> <p><b><u>Task:</u></b> Prepare Mango Juice (/;)</p> <p><b><u>Standard:</u></b></p> <ul style="list-style-type: none"> <li>• All task steps followed sequentially with patience, care and confidence.</li> <li>• Water, sugar and citric acid properly added in the juice extracted. (i.e. 1.85 liter water, 450 gram sugar &amp; 8 gram citric acid is added for one kg of mango pulp.)</li> <li>• Juice only warmed, not boiled .</li> <li>• Bottles sterilized for 20-25 minutes in boiling water well before filling.</li> <li>• Bottle properly sealed.</li> <li>• All precautions properly followed.</li> </ul>	<ul style="list-style-type: none"> <li>• Concept of juice, selection of mango for its extraction.</li> <li>• Cleaning &amp; its importance.</li> <li>• Why and how of peeling mango.</li> <li>• Why and how of removing inner hard stone of mango.</li> <li>• Cutting &amp; handling cutting knife.</li> <li>• Stirring and its need.</li> <li>• Why, how and what of filtration.</li> <li>• Need to add water, sugar &amp; citric acid in the extracted juice.</li> <li>• Why not to boil the juice.</li> <li>• How and why of sterilization.</li> <li>• How to fill bottles.</li> <li>• How to seal the bottle</li> <li>• Precautions.</li> </ul>

## 11.9 Task: Carryout Mango Canning (af]tn aGbL

Task Steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> <li>1. Select right mango for canning</li> <li>2. Peel mango</li> <li>3. Cut a mango into 6-8 pieces</li> <li>4. Prepare 2% brine</li> <li>5. Dip mango pieces in the brine</li> <li>6. Put the mango pieces in a can to filling.</li> <li>7. Prepare 40% saline</li> <li>8. Obtain citric acid.</li> <li>9. Add saline and citric acid mixture in the can</li> <li>10. Keep cans in boiling water for 25 minutes.</li> <li>11. Exhaust the cans.</li> <li>12. Seal the cans.</li> </ol>	<p><b><u>Condition:</u></b></p> <ul style="list-style-type: none"> <li>• Mango</li> <li>• Mango cans</li> <li>• Peeling /cutting knives</li> <li>• Salt</li> <li>• Sugar</li> <li>• Water</li> <li>• Citric acid</li> <li>• Bowls/Utensils</li> <li>• Sealing materials</li> <li>• Measuring tools.</li> </ul> <p><b><u>Task:</u></b> Carry out Mango Canning (af]tn aGbL)</p> <p><b><u>Standard:</u></b></p> <ul style="list-style-type: none"> <li>• All task steps followed sequentially with confidence, patience and care.</li> <li>• Mango made into pieces at the rate of 6-8 pieces per mango.</li> <li>• Percentage of brine maintained 2%</li> <li>• Percentage of saline and citric acid maintained as 40% and 0.3 to 0.5% respectively.</li> <li>• Cans kept in boiling water for 25 minutes.</li> <li>• Exhaust time maintained as 7-10 minutes.</li> <li>• Can sealed well.</li> <li>• All precautions well followed.</li> </ul>	<ul style="list-style-type: none"> <li>• Concept of canning .</li> <li>• Right variety of mango for canning</li> <li>• Peeling process</li> <li>• Cutting process &amp; size of pieces.</li> <li>• Concept of brine &amp; its preparation.</li> <li>• Process of dipping &amp; its need.</li> <li>• Can filling.</li> <li>• Concept, process &amp; need of saline preparation.</li> <li>• Function of citric acid &amp; its rate.</li> <li>• Sterilization of cans.</li> <li>• Process of exhaustion.</li> <li>• Sealing procedure .</li> <li>• Precautions.</li> </ul>



## 11.10 Task: Prepare Mango Wine (jfOg)

Task Steps	Terminal Performance Objective	Related Technical Knowledge
<ol style="list-style-type: none"> <li>1. Select ripen mango.</li> <li>2. Clean the selected mango.</li> <li>3. Peel mango</li> <li>4. Remove inner hard stone.</li> <li>5. Cut into pieces .</li> <li>6. Stir well in a bowl.</li> <li>7. Filter the juice.</li> <li>8. Prepare sugar solution.</li> <li>9. Add sugar solution to the mango pulp (u"bL)</li> <li>10. Add citrus juice (sfutLsf] /;)</li> <li>11. Add water</li> <li>12. Add yeast</li> <li>13. Check for fermentation</li> <li>14. Separate mango wine by siphoning.</li> <li>15. Put the wine in bottles</li> <li>16. Fix lid on the bottles.</li> <li>17. Put bottles in hot water at 60<sup>0</sup> C for 30-35 minutes.</li> <li>18. Cool and store the wine bottles.</li> </ol>	<p><b><u>Condition:</u></b></p> <ul style="list-style-type: none"> <li>• Ripen mango</li> <li>• Water</li> <li>• Peeling /cutting knife</li> <li>• Stirrer</li> <li>• Bowl/utensils/bottles</li> <li>• Filter</li> <li>• Sugar</li> <li>• Citrus</li> <li>• Yeast</li> <li>• Thermometer</li> <li>• Water etc.</li> </ul> <p><b><u>Task:</u></b> Prepare Mango Wine (jfO{g)</p> <p><b><u>Standard:</u></b></p> <ul style="list-style-type: none"> <li>• All task steps carried out in order with patience, care and confidence.</li> <li>• Sugar solution prepared at the rate of 1.5 kg. of sugar per 2 lit. of water.</li> <li>• Water added to the mixture to make it 5 liters.</li> <li>• Formation temperature maintained at 75<sup>0</sup> to 80<sup>0</sup>F.</li> <li>• Wine bottle, with lid filled, sterilized in boiling water for 30-35 minutes at 60<sup>0</sup>C</li> <li>• All precautions well followed.</li> </ul>	<ul style="list-style-type: none"> <li>• Selecting ripen mango.</li> <li>• Concept of mango wine .</li> <li>• How and why to clean mango.</li> <li>• Peeling procedure.</li> <li>• Removing inner hard stone.</li> <li>• Cutting into pieces.</li> <li>• Need to stir.</li> <li>• How to filter.</li> <li>• Preparation of sugar solution.</li> <li>• Concept of pulp (u"bL)</li> <li>• Why to add citrus juice.</li> <li>• Need to add water</li> <li>• Function of yeast.</li> <li>• Concept of fermentation.</li> <li>• Concept, need and process of syphoning.</li> <li>• How to bottle the wine.</li> <li>• Need to fix lid of the wine bottle and fixing procedure.</li> <li>• Need to put wine bottles at 60<sup>0</sup> C for 30/35 minutes.</li> <li>• Need to store wine bottles carefully.</li> </ul>

## 12. **Certificate requirement**

In order to get the certificate of completion of this training, trainees should master all the tasks and knowledge included in this curriculum.

## 13. **Facilities**

1. Well equipped class rooms.
2. Well equipped kitchen for preparing mango products.

## 14. **Trainers' qualification**

1. Advance training in fruit preservation technology.
2. Good communicative/instructional skills
3. Job experience in the related field.

## 15. **Trainees' evaluation**

1. Regular evaluation of trainees' performance by their related trainers
2. Written evaluation regarding the related technical knowledge
3. Final practical test by the related institute

## 16. List of tools/equipment/materials:

1. Pilling knives
  2. Coring knives
  3. Pitting knives
  4. Juice extractor
  5. Basket press
  6. Washing brush
  7. Tanks
  8. Bucket
  9. Doko
  10. Stell Table
  11. Small steel knife
  12. Bowls
  13. Trays/steel trays
  14. Filter
  15. Funnal
  16. Dadu (\*F\*\*)
  17. Panauo (Big Spoon)
  18. Bricks hydrometer
  19. Refractrometer
  20. Chemical balance
  21. Stove/stone pin
  22. Matches
  23. Utensils
  24. Cooking pots/water pots
  25. Scale
  26. Measuring cylinder
  27. Tools for checking
- Fermentation
1. Thermometer
  2. Watch
  3. Packaging Materials
  4. Sealing Materials
  5. Labels
  6. Mustard oil
  7. Spices
  8. Stirrers
  9. Jyono
  10. Methi
  11. Plastic Bags
  12. Cans
  13. Yeast
  14. Other tools, Materials & supplies as per the need
28. Syphon.
  29. Mango
  30. Water
  31. Citric acid
  32. Sugar
  33. Salt
  34. Potassium Metabisulphite
  35. Clean thin cloths
  36. Glycerine