**TVE**

**10**

**Technology and Livelihood Education**

**Agri-Fishery Arts**

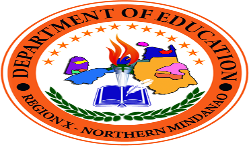
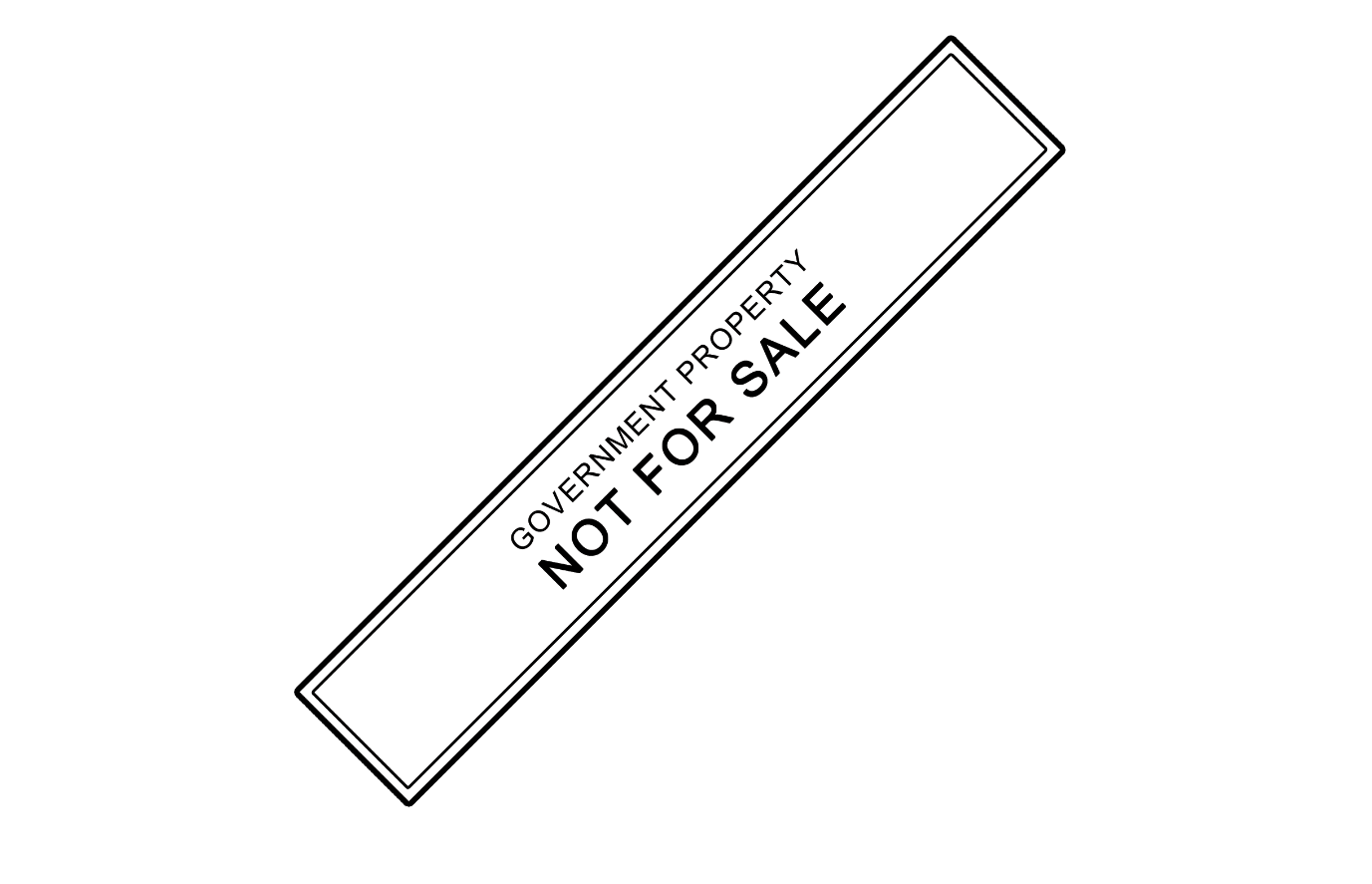
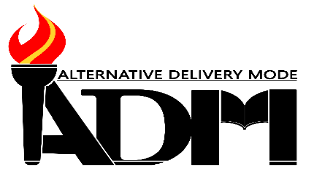
**Food Processing**

**Quarter 2 - Module 2**

**Processing Food by Sugar Concentration**

**Operating Equipment**

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**Department of Education • Republic of the Philippines**

**Technology and Livelihood Education Grade 10**

**Agri-Fishery Arts - Food Processing**

**Alternative Delivery Mode**

**Quarter 2 - Module 2: Processing Food by Sugar Concentration**

**First Edition, 2020**

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**Technology and Livelihood Education**

**Agri-Fishery Arts**

**Food Processing**

**Quarter 2 - Module 2**

**Processing Food by Sugar Concentration**

This module was collaboratively developed and reviewed by educators from public schools. We encourage teachers and other education stakeholders to email their feedback, comments and recommendations to the Department of education at [bukidnon@deped.gov.ph](mailto:bukidnon@deped.gov.ph).

We value your feedback and recommendations.

# Department of Education • Republic of the Philippines

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# Introductory Message

**For the Facilitator:**

Welcome to the Technology and Livelihood Education Grade 10 Agri-Fishery Arts (Food Processing) Alternative Delivery Mode (ADM) Module on Processing Food by Sugar Concentration!

This module was collaboratively designed, developed and reviewed by educators both from public and private institutions to assist you, the teacher or facilitator in helping the learners meet the standards set by the K to 12 Curriculum while overcoming their personal, social and economic constraints in schooling.

This learning resource hopes to engage the learners into guided and independent learning activities at their own pace and time. Furthermore, this also aims to help learners acquire the needed 21st century skills while taking into consideration their needs and circumstances.

In addition to the material in the main text, you will also see this box in the body of the module:



***Notes to the Teacher***

This contains helpful tips or strategies that will help you in guiding the learners.

As a facilitator you are expected to orient the learners on how to use this module. You also need to keep track of the learners' progress while allowing them to manage their own learning. Furthermore, you are expected to encourage and assist the learners as they do the tasks included in the module.

**For the Learner:**

Welcome to the Technology and Livelihood Education Grade 10 Agri-Fishery Arts (Food Processing) Alternative Delivery Mode (ADM) Module on Processing Food by Sugar Concentration!

You must be very eager to start with the learning activities. The activities in the module have been designed to provide you with rich and stimulating learning experiences that will help you to prepare the equipment to process food including jams, jellies! Familiarize yourself with the different sections of this module.

This module was designed to provide you with fun and meaningful opportunities for guided and independent learning at your own pace and time. You will be enabled to process the contents of the learning resource while being an active learner.

This module has the following parts and corresponding icons:

|  |  |  |  |
| --- | --- | --- | --- |
| |  |  | | --- | --- | | C:\Users\DEPED\Desktop\ADM specs\ADM cover and icons\ADM Icons\Alamin2.jpg | ***What I Need to Know*** | | This will give you an idea of the skills or competencies you are expected to learn in the module. |
| |  |  | | --- | --- | | C:\Users\DEPED\Desktop\ADM specs\ADM cover and icons\ADM Icons\What I Know.jpg | ***What I Know*** |   C:\Users\DEPED\Desktop\ADM specs\ADM cover and icons\ADM Icons\Balikan.jpg | This part includes an activity that aims to check what you already know about the lesson to take. If you get all the answers correct (100%), you may decide to skip this module. |
| |  |  | | --- | --- | |  | ***What’s In*** | | This is a brief drill or review to help you link the current lesson with the previous one. |
| |  |  | | --- | --- | | C:\Users\DEPED\Desktop\ADM specs\ADM cover and icons\ADM Icons\Tuklasin.jpg | ***What’s New*** | | In this portion, the new lesson will be introduced to you in various ways such as a story, song, poem, problem opener, an activity or situation. |
| |  |  | | --- | --- | | C:\Users\DEPED\Desktop\ADM specs\ADM cover and icons\ADM Icons\suriin.jpg | ***What Is It*** | | This section provides a brief discussion of the lesson. This aims to help you discover and understand new concepts and skills. |
| |  |  | | --- | --- | | C:\Users\DEPED\Desktop\ADM specs\ADM cover and icons\ADM Icons\whats more.jpg | ***What’s More*** | | This comprises activities for independent practice to solidify your understanding and skills of the topic. You may check the answers to the exercises using the Answer Key at the end of the module. |
| |  |  | | --- | --- | | C:\Users\DEPED\Desktop\ADM specs\ADM cover and icons\ADM Icons\Isaisip.jpg | ***What I Have Learned*** | | This includes questions or blank sentence/paragraph to be filled in to process what you learned from the lesson. |
| |  |  | | --- | --- | | C:\Users\DEPED\Desktop\ADM specs\ADM cover and icons\ADM Icons\Isagawa.jpg | ***What I Can Do*** | | This section provides an activity which will help you transfer your new knowledge or skill into real life situations or concerns. |
| |  |  | | --- | --- | | C:\Users\DEPED\Desktop\ADM specs\ADM cover and icons\ADM Icons\Tayahin.jpg | ***Assessment*** | | This is a task which aims to evaluate your level of mastery in achieving the learning competency. |
| |  |  | | --- | --- | | C:\Users\DEPED\Desktop\ADM specs\ADM cover and icons\ADM Icons\Additional Activities.jpg | ***Additional Activities*** | | In this portion, another activity will be given to you to enrich your knowledge or skill of the lesson learned. This also tends retention of learned concepts. |
| |  |  | | --- | --- | | C:\Users\DEPED\Desktop\ADM specs\ADM cover and icons\ADM Icons\Answer Key 2.jpg | ***Answer Key*** | | This contains answers to all activities in the module. |

At the end of this module you will also find:

|  |  |
| --- | --- |
| ***References*** | This is a list of all sources used in developing this module. |

The following are some reminders in using this module:

1. Handle this module with care. Do not write anything on any part of the module. Use another sheets for your answers.
2. Study the cover. Read the title. Look at the picture. Internalize what is this module all about.
3. Read the “What I need to Know!” to be familiarized with expected skills you are to learn from this module. Always refer to these objectives as you perform tasks in the different learning activities so you can check if your following the right track to attain the objectives of this module.
4. Don’t forget to answer “What I Know!” and pre test before moving on to the other activities. Do not worry about getting a low score. Just go on and do your best.
5. Read and Study carefully the sections, “What Is It” to help you conceptualize the new lesson and skills.
6. Accomplish all the activities in this module.
7. Observe honesty and integrity in doing the tasks.
8. Finally, answer the Assessment to check if you really comprehend what you read. Check if your answers are correct in the answer key provided at the end of every lesson. Certainly, you are expected to score high than the pre test.

If you encounter any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator. Always bear in mind that you are not alone.

We hope that through this material, you will experience meaningful learning and gain deep understanding of the relevant competencies. You can do it!

|  |  |
| --- | --- |
| C:\Users\DEPED\Desktop\ADM specs\ADM cover and icons\ADM Icons\Alamin2.jpg | ***What I Need to Know*** |

This module was designed and written with you in mind. It is here to help you master the Processing Food by Sugar Concentration. It covers the knowledge, skills and attitudes required in processing food by sugar concentration such as preparing the raw materials, performing acid, pectin and sugar mixture, cooking sugar concentrates and preparing production report.

The module is divided into two lessons, namely:

* Lesson 4 – Cooking jams, jellies, marmalades and preserves
* Lesson 5 – Preparing production report

After going through this module, you are expected to:

1. Cook jams, jellies, marmalades and preserves
2. Prepare production report

|  |  |
| --- | --- |
| C:\Users\DEPED\Desktop\ADM specs\ADM cover and icons\ADM Icons\What I Know.jpg | ***What I Know*** |

**PRE-ASSESSMENT**

To assess what you know about the tools, equipment and utensils answer the following activities.

*A. Multiple Choice. Choose the letter of the best answer. Write the chosen letter on a separate sheet of paper.*

1. What ingredients determine the amount of sugar needed in jellies, jam and marmalade?

a. fruit and pectin

b. fruit and acid

c. pectin and acid

d. pectin and peel

2. How is the fruit pulp prepared for jam making?

a. boiling

b. chopping

c. squeezing

d. paring

3. Which of the following is one of the causes of syneresis in jams?

a. excessive use of buffers

b. too little acids

c. too little pectin

d. too much sugar

4. How many cup of sugar is added if the fruit juice is rich in pectin?

a. ½ cup

b**. ¾** cup

c. 1 cup

d. 1 ¼ cup

5. What is the secret in making jam?

a. boil rapidly before adding the sugar and slowly afterwards

b. boil slowly before adding the sugar and rapidly afterwards

c. add sugar and boil slowly

d. add sugar and boil rapidly

6. Why is it necessary to determine the unit cost of the product?

a. to have a plenty of sales

b. to know the cost of the product

c. to have profit in selling

d. to know the price at which one sells her product

7. How will you determine the unit cost of a certain product?

a. cost of the production divided by number of servings

b. cost of the production divided by number of servings sold

c. cost of the production minus sales

d. cost of the production plus profit

8. How much is the net profit of the total sales is 235.25 php and the cost of the product is 155.50 php?

a. 79.25

b. 79.50

c. 79.75

d. 80.00

9. What items are added to determine the cost of product?

a. ingredients and unit cost

b. ingredients and sales

c. ingredients and operating expenses

d. ingredients and profit

10. If the unit cost of a product is 20.00 php, how much is the selling price if 50% is added to the unit cost?

a. 25.00

b. 30.00

c. 35.00

d. 40.00

|  |  |
| --- | --- |
| Lesson1 | Cooking Jams, Jellies, Marmalades and Preserves |

This lesson focuses on how to cook in jam, jellies, marmalades and preserves. It discusses the different test to be done in determining the desired end point of the cooked product. It includes the characteristics of god finished jellies, jams, marmalades and preserves. This lesson also tells you about the problems encountered their causes and prevention in the process of making sugar concentrated product.

**Lesson 4 | Objectives**

*At the end of the lesson, the learners are expected to:*

a. give the steps in cooking jams, jellies, marmalades and preserves;

b. cooks jams, jellies, marmalades and preserves; following the steps;

c. evaluate finished products based on the characteristics of sugar concentrated products.

d. discuss the problems encountered and their causes of failure and it’s prevention in making sugar concentrated products

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| --- | --- |
| C:\Users\DEPED\Desktop\ADM specs\ADM cover and icons\ADM Icons\What I Know.jpg | ***What I Know | LESSON 4*** |

*Multiple Choice. Choose the letter of the best answer. Write the chosen letter on a separate sheet of paper.*

1. Which of the following is one of the steps followed in cooking jams?

a. Add the sugar when pulp is completely softened

b. Cook rapidly without stirring until jellying point is reached

c. The sugar, juice and peel of sliced fruits are boiled to jellying point.

D, Boil the fruit until soft.

1. How many cups of sugar is added if you have 15 cups water, if the ratio of thin syrup is 3:1 ( 3 cups water: 1 cup sugar)
2. 3 cups sugar
3. 4 cups sugar
4. 5 cups sugar
5. 6 cups sugar
6. Which of the following test is used to determine jellying point?
7. Bubble formation
8. Cooking test
9. Jelmeter test
10. Pectin test

1

1. Which of the following is one of the causes of syneresis in jams?

a. excessive use of buffers

b. too little acid

c. too little pectin

d. too much sugar

1. Which of the following is one of the characteristics of a good preserve?

a. jelly-like consistency

b. thick and smooth

c. plump, soft and tender

d. not syrupy

1. What ingredients determine the amount of sugar needed in jellies, jam and marmalade?

a. fruit and pectin

b. fruit and acid

c. pectin and acid

d. pectin and peel

7. How is the fuirt pulp prepared for jam making?

a. boiling

b. chopping

c. squeezing

d. paring

8. Which of the following is one of the causes of syneresis in jams?

a. excessive use of buffers

b. too little acids

c. too little pectin

d. too much sugar

9. How many cup of sugar is added if the fruit juice is rich in pectin?

a. ½ cup

b**. ¾** cup

c. 1 cup

d. 1 ¼ cup

10. What is the secret in making jam?

a. boil rapidly before adding the sugar and slowly afterwards

b. boil slowly before adding the sugar and rapidly afterwards

c. add sugar and boil slowly

d. add sugar and boil rapidly

2

|  |  |
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| C:\Users\DEPED\Desktop\ADM specs\ADM cover and icons\ADM Icons\Balikan.jpg | ***What’s In*** |

Let us define:

Take a look at the word meanings below:

1. **crinkles**- wrinkles

2. **dip**- to plunge for a short time into a fluid

3. **Jellying point/setting point**- point when sugar concentration reaches 60%

4. **lift**- raise

5. **plump**- round

6. **scum**- a film covering on the surface of the jelly

7. **quiver**- to tremble, shake or shiver

Let us Study:

**How to cook sugar concentrated products**

**A. Jellies**

1. Measure the required amount of sugar to be added to the fruit juice.

2. For every cup of juice, add ¾ to 1 cup sugar. Stir to dissolve the sugar.

3. Strain again to remove any dissolved sugar, scum or dirt.

4. Cook rapidly without until jellying point is reached.

5. Skim and pour in sterilized jars while still hot.

6. Seal and label.

**B. Jams**

1. Cook the pulp until soft. When cooking jams add sugar when pulps of the fruits are completely softened, otherwise the fruits become hard are added early.

2. Add the required amount of sugar. The usual proportion is ½ to ¾ cup of sugar per cup of pulp. If the fruit is moderately rich in protein, add smaller amount of sugar.

3. After sugar has been added, boil rapidly until the jam starts to set in. The secret in making jam is to cook slowly before adding the sugar and rapidly afterwards.

4. As soon as the jam reaches the setting point, remove the scum by scooping with a clean wooden spoon.

5. Pour the jam into sterilized jars while still hot.

6. Seal and label.

**C. Marmalades**

1. The amount of sugar needed depends on the composition of the juice. More sugar can be added to juices rich in protein and acid than those deficient in one or both constituents.

2. The sugar, juice and peel of sliced or chopped fruits are boiled to jellying point which is usually 104°C. A good marmalade should be of jelly- like consistency and not syrupy.

3. Pour the marmalade into sterilized jars.

4. Seal and label.

**D. Preserves**

1. Prepare the kind of syrup needed for the fruit.

a. Thin- 3 cups water to 1 cup sugar

b. Medium- 2 cups water to 1 cup sugar

3

c. Thick- 1 cup water to 1 cup sugar

2. Drop the fruit into boiling syrup and cook until fruit is clear and tender. In cooking, make that the fruits or vegetables are covered with the syrup at all times so that the surface will not dry up and harden before the syrup is absorbed by the pieces.

3. Cook rapidly so that the preserve will look bright and attractive.

4. Drain fruits.

5. Pack in sterilized jars and pour boiling syrup.

6. Remove air bubbles.

7. Half-seal.

8. Sterilized jars for 25 minutes in a boiling water.

9. Seal tightly.

10. Place jars upside down to test for leakage.

11. Label properly.

**How to test the Jellying Point**

One or a combination of the following tests may be used to make sure that the mixture has reached its jellying point.

1. **Bubble formation**- large bubbles that tend to jump out of the pan are formed rather than uniformly bubbles.

2. **Cold Plate Test**- when doing this test remove the pan from heat.

**Two ways of doing the cold plate test**

a. **With water**. Pour a small amount of the boiling syrup into the saucer. If the syrup forms a soft ball which crinkles when pushed with the finger and retains its shape when lifted out of the water, then the jellying point has been reached.

b. **Without water**. Cool teaspoonful of jelly in a saucer. If the surface of the syrup sets and crinkles when pushed with the finger, then the jellying point has been reached.

3. **Spoon, Sheet and Flake Test**. Dip a wooden spoon into the boiling jelly. Cool slightly. Lift and tilt the spoon until the syrup runs down the side. The jellying point has been reached if the jellies sets on the spoon and the last two drops of the syrup flow together and fall off the spoon as one sheet of flake.

4. **Temperature Test**. Before cooling the jelly, get the temperature of the boiling water. The jelly will set when the juice is heated 8° to 10° Fahrenheit higher than the boiling point of water. The range is usually 119.5° to 222° Fahrenheit depending on the desired consistency.

**Characteristics of good finished products**

A. **Jellies**

1. Clear, transparent and have an attractive color.

2. Retain their form, quivers and do not flow when removed from their containers.

3. Retain the flavour and aroma of the original fruit.

4. Texture is tender.

B. **Jams**

1. The colour is bright, thick and smooth when spread.

2. Retain the natural flavour and aroma of the fruit.

C. **Marmalades**

A good marmalade should be of jelly- like consistency and not syrupy.

4

D. **Preserves**

1. Sparkling and listening.

2. Retain the natural color and flavour of fruits.

3. Plump, soft and tender.

**Problem in Jelly Making**

Problems are likewise encountered in the process of making jelly. In Table 1 below, the different causes of failures in jelly making and their prevention are discussed.

Table1. Problem in Jelly Making

5

|  |  |  |
| --- | --- | --- |
| Condition (Product usable unless spoilage indicated) | Causes | Prevention |
| Jelly is cloudy | 1. Fruit used was deep green.  2. Fruit may have been cooked to long before straining  3. Juice may have been squeezed from fruit.  4. Jelly was poured into jar too slowly.  5. Jelly mixture was allowed to stand before it was poured into jars. | 1. Fruit should be firm ripe.  2. Fruit should be cooked only until it is tender.  3. To obtain the clearest jelly drip though cotton flannel bag.  4. Next time, work more quickly.  5. Upon reaching jelly point, pour the mixture into jars and seal. |
| Jelly contains glass like particles | 1. Used much sugar was used.  2. The mixture has been cooked too little.  3. The mixture may have been cooked too slowly or too long.  4. Undissolved sugar which stuck to the pan was washed into the jelly as it was poured.  5. If jelly is grape, the crystals may be tartaric acid, the natural substances in grapes from which cream of tartar is made. | 1. To short cooking period results in the sugar not being dissolved completely and not mixed thoroughly with the fruit juice.  2. Cook a little longer.  3. Long, slow cooking results in too much evaporation of the water content of the fruit.  4. Ladle jelly into the jar instead of pouring it. Or, carefully wipe side of the pan to remove sugar crystals with a damp cloth before filling jars.  5. Allow juice to stand in refrigerator for several days; then stirring it through two thicknesses of damp cheesecloth before prerparing jelly. Use canned juice. If sediment is at bottom of jar, care carefully pour juice off so as not to disturb sediment. |
| Jelly is low in fruit flavor | 1. Fruit used has little flavour.  2. Jelly was stored too long.  3. Storage area was too warm. | 1. Use full flavoured fruits; tree ripened one are best.  2. Jelly should not be stored for over a year.  3. Storage area should be cool, dark and dry. |
| Jelly has bubbles ( may denote spoilage) | 1. if bubbles are moving, jelly is spoiling; usually the airtight seal has been broken.( Do not eat).  2. If bubbles are standing still, utensil from which jelly was poured was not held close to top of jar or jelly was poured slowly. | 1. Be sure to test for seal before storing jars.  2. Hold utensils close to top of jar and pour into air quickly. |
| Jell “weeps” | 1. Syneresis is “weeping” usually occur in quick-setting jellies and is due to the quality of pectin in the fruit.  6  2. Storage conditions were not ideal. | 1. None  2. Store in cool, dark and dry place. |
| Jelly is tough or stiff | 1. Too much pectin in fruit.  2. Jelly was over cooked.  3. Too little sugar so mixture had to be cooked too long to reach jellying stage. | 1. Use fruit which is riper. If adding pectin, do not add as much.  2. Cook just enough. Do not overcook.  3. When pectin is not added ¾ cup of sugar per cup of juice is right amount for most fruits. When using measuring cup, level off sugar with straight edge of a knife. |
| Jelly ferments | Yeast grow on jelly when seal is not airtight (usually noticeable in jar sealed with paraffin causing the jelly to breakthrough paraffin and to “weep” | Test for seal before storing jelly. |
| Jelly molds | Jar was not sealed properly, allowing mold to grow on surface of jelly. May denote spoilage; if growth of mold is heavy. Do not eat. | Use vacuum selling nest time. Test for seal before storing jelly. |

**Problems in Jam- Making**

In the table 2 below, the different causes of failures in jam-making are enumerated.

Table 2. Problems in Jam-Making

7

|  |  |
| --- | --- |
| Condition | Cause |
| Slack Jam | Prolonged boiling  Too much acid  Too little acid  Too little pectin  Presence of mineral salts in fruits  Too much sugar in relation to pectin |
| Syneresis ( Weeping or bleeding) | Too long boiling time  Insufficient cooling after filling  Use of discoloured pulp  Excessive use of buffers  Contamination with metals  Biological causes and mechanical injury |
| Cyrstallization | Too much acid  Too little acid  Prolonged boiling  Too much cream of tartar  Too long standing in pan after cooking |
| Hard or shrunken fruit (happens also in marmalade) | Very hard water used in pre-cooking fruit peel  Boiling of fruit or peel in heavy syrup with insufficient pre- cooking |
| Mold and yeast growth | Excessive humidity of jam storage area  Contamination prior to sealing of jars and bottles.  Low –soluble solid content of the product  The danger line is 65% slack jam |

**How some of fruits are made into Jelly**

**Sample Recipes**

**Santol Jelly**

Ingredients:

Santol Fruit

Sugar

Procedure:

1. Prepare an equal amount of slightly underripe and just ripe santol.

2. Was very well and blanch for about five minutes. Pare.

3. Cut pulp into small pieces and place in pan together with the seeds.

4. Add enough water to barely cover the fruit.

5. Boil gently until soft.

6. Pour until jelly bag to squeeze out of the juice.

7. Allow to settle. For every cup of juice, add ¾ to 1 cup of sugar.

8. Dissolve sugar by stirring

9. Boil and strain again to rid of undissolved sugar, scum or dirt.

10. Cook rapidly without stirring until jellying point s reached.

11. Skim and pour while still hot in sterilized jars.

8

12. Cool slightly and pour melted paraffin one-eight inch thick.

13. Prick air bubbles that may appear in paraffin to ensure complete sealing.

14. Label and store.

**Guava Jelly**

Ingredients:

¾ to 1 cup of sugar for every cup of guava juice

1 tablespoon kalamansi juice for every cup of juice

Procedure:

1. Prepare an equal mixture of slightly under ripe and ripe mature guavas.

2. Wash very well and remove blossom ends.

3. Cut into halves and quarters.

4. Place in an enamel or stainless steel kettle add enough water to cover the fruit.

5. Boil gently until soft.

6. Place cooked fruit in a cheesecloth or jelly bag. Let juice drip from the bag.

7. Do not include pulp.

8. Add ¾ to 1 cup of sugar, and one tablespoon kalamasni juice for each cup of guava juice.

9. Cook over strong fire until the jellying point is reached.

10. Pour while still hot into sterilise jars.

11. Pour melted paraffin one-eight inch thick before jelly is completely cooled.

12. Prick air bubble hat may appear in the paraffin to ensure complete sealing.

13. Label and store.

**How some of our fruits are made into Jams?**

**Pineapple Jam**

Ingredients:

1 cup of sugar per cup of fruit pulp

Pineapple pulp

Procedure:

1. Use regular-size ripe pineapples.

2. Peel the fruit and remove the eyes.

3. Wash very well and grate in papaya grater or cut into small pieces and chop finely.

4. To every cup of chopped or grated pulp, add one cup of sugar.

5. Boil until thick.

6. While still hot, pour into sterilized jars and seal tightly.

7. Label and store.

**Mango Jam**

Ingredients:

Mango pulp

¾ cup of sugar per cup of fruit pulp

1 tablespoon kalamansi juice

2 tablespoon glucose (optional)

9

Procedure:

1. Choose fully ripe mangoes.

2. Wash very well. Slice and scoop out of the flesh.

3. Mash the pulp or flesh and measure. Add sugar.

4. Place in pan and boil over strong fire, stir constantly.

5. After about three minutes, add kalamansi juice.

6. Continue stirring until mixture is thick.

7. Remove from heat and pour while still hot in sterilized jars.

8. Seal tightly.

9. Label and store.

**How some of our fruits are made into Marmalades**

**Santol Marmalade**

Ingredients:

1 cup of santol pulp

1 cup of santol juice

1-1/2 cups of sugar

Procedure:

1. Wash and blanch santl for about five minutes.

2. pare, cut and remove the seeds.

3. Chop the pup finely and measure in cups

4. Place seeds and skin in an enamel or stainless steel pan and pour enough water to just cover the fruit.

5. Simmer gently and strain the juice.

6. Combine juice with chopped pulp and measure. For every cup of combined pulp and juice, add ¾ cup of sugar.

7. Stir well to dissolve sugar.

8. Cook over strong fire until mixture thickness and until fruit pulp is clear and transparent.

9. Remove from heat, stir and skim alternately for three minutes.

10. Pour into sterilized jars while still hot and seal at once.

11. Label and store.

**Mango- Orange Marmalade**

Ingredients:

8 ripe mangoes

2 oranges

Peel of 1 orange

Sugar

Procedure:

1. Wash, peel and scoop out flesh of mango with spoon.

2. Chop finely using a stainless steel knife.

3. Remove peel and seeds from oranges.

4. Chop finely also using a stainless steel knife.

5. Shred the orange peel.

6. Combine chopped mango, orange pulp and peel in an enamel or stainless steel kettle. For every cup of the combined mixture add ¾ cup of sugar.

7. Stir until sugar is completely dissolved.

8. Boil mixture rapidly while constantly stirring until tick

9. Pour while still hot into sterilized jars.

10. Seal immediately, label and store.

10

**How some of our fruits are made into Preserves**

**Banana Preserve**

Ingredients:

Banana, saba

Sugar

Water

Citric Acid

Procedure:

1. Use ripe saba variety bananas. Boil in enough wwater. Peel. Remove adhering fibers.

2. Prepare syrup of two parts of sugar and one part of water. Cook the bananas in the syrup for 15 minutes.

3. Soak overnight.

4. The following day, drain bananas. Boil syrup for 15 minutes and add citric acid (1/4 tsp. for every 4 cups syrup).

5. Pack bananas in preserving jars. Fill bottles with syrup. Remove bubbles; then, refill with syrup.

6. Half-seal sterilized jars for 25 minutes in boiling water or for 15 minutes in a pressure cooker. Seal tightly.

7. Label and store.

**Nangka Preserve**

1. Remove seeds and cut both ends of the fleshy bulbs.

2. Wash and cook for 10 minutes in syrup (one part of sugar to two parts of water) soak in syrup.

3. Drain bulbs, pack in sterilized jars and pour boiling syrup.

4. Remove air bubbles. Refill spaces with syrup. Half-seal.

5. Sterilized pint jars in boiling water for 30 minutes. Seal tightly. Place jars upside down to test for leakage.

6. Cool and label.

7. Store in cool dry place.

**Kamias Preserve**

1. Select big mature, firm kamias. Soak in lime water (one teaspoonful of lime to a liter of water) overnight.

2. Wash and boil in a copper vat or kettle with enough water to cover.

3. Stir once in a while. When the natural color of the kamias has set, remove from fire and soak in cold water for two hours.

4. Drain and press each one lightly to remove excess water. Prepare syrup made up two parts sugar and one part sugar.

5. Boil kamias in the syrup for 30 minutes. Drain.

6. Pack in jars and pour syrup. Remove air bubbles and refill with syrup.

7. Half-seal and sterilized pint jars for 25 minutes in boiling water. Seal tightly.

8. Label and seal.

**Kundol Preserve**

1. Select mature kundol. Peel thinly and slice into desired size and shape.

2. Soak in lime water (one teaspoon of lime to a liter of water)

Overnight.

11

1. Wash and blanch in boiling water for 10 minutes. Drop in cold
2. water. Drain.

4. Boil in syrup (two parts of sugar and one part of water). Soak overnight.

5. Cook in syrup until thick. Drain and pack the kundol in preserving jars.

6. Fill with syrup. Half-seal and sterilize pint jars for 20 minutes in boiling water. Seal tightly label and store.

Let us remember:

Undercooking and overcooking are some of the causes of failure in making jams, jellies and marmalades. Problems in preparing these products can be avoided if you know to test the jellying point of your products.

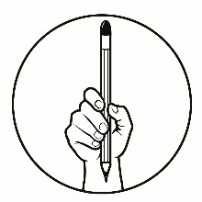


***What’s More***

**ACTIVITY 1: Sorting and Grading Activity. Make a video of the following activities given below. Then, send it to our class group chat for checking.**

1. Prepare jellies, jams, preserves and marmalade using fruits or vegetables available in your backyard.

2. To produce good quality products, use any of the tests you have learned in testing jellying point.



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| --- | --- |
|  | ***Assessment*** |

*Multiple Choice. Choose the letter of the best answer. Write the chosen letter on a separate sheet of paper.*

1. How many cups of sugar is added if you have 15 cups water, if the ratio of thin syrup is 3:1 (3 cups water: 1 cup sugar)

a. 3 cups sugar

b .4 cups sugar

c. 5 cups sugar

d. 6 cups sugar

2. Which of the following test is used to determine jellying point?

a. Bubble formation

b. Cooking test

12

c. Jelmeter test

d. Pectin test

3. Which of the following is one of the causes of syneresis in jams?

a. excessive use of buffers

b. too little acid

c. too little pectin

d. too much sugar

4. Which of the following is one of the steps followed in cooking jams?

a. Add the sugar when pulp is completely softened

b. Cook rapidly without stirring until jellying point is reached

c. The sugar, juice and peel of sliced frits are boiled to jellying point.

d. Boil the fruit until soft.

5. How is the fruit pulp prepared for jam making?

a. boiling

b. chopping

c. squeezing

d. paring

6. What ingredients determine the amount of sugar needed in jellies, jam and marmalade?

a. fruit and pectin

b. fruit and acid

c. pectin and acid

d. pectin and peel

7. Which of the following is one of the causes of syneresis in jams?

a. excessive use of buffers

b. too little acids

c. too little pectin

d. too much sugar

8. Which of the following is one of the characteristics of a good preserve?

a. jelly-like consistency

b. thick and smooth

c. plump, soft and tender

d. not syrupy

9. What is the secret in making jam?

a. boil rapidly before adding the sugar and slowly afterwards

b. boil slowly before adding the sugar and rapidly afterwards

c. add sugar and boil slowly

d. add sugar and boil rapidly

10. How many cup of sugar is added if the fruit juice is rich in pectin

a. ½ cup

b. ¾ cup

c. 1 cup

d. 1 ¼ cup

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What I Know Assessment

1. C

2. A

3. A

4. A

5. B

6. C

7. A

8. C

9. B

10. B

1. A

2. C

3. A

4. A

5. C

6. C

7. B

8. A

9. B

10. B

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| Lesson2 | Preparing Production Report |

**Lesson 5 | Objectives**

*At the end of the lesson, the learners are expected to:*

a. give the importance of determining the selling price of a processed product;

b. compute the following: cost for ingredients, cost for operating expenses, cost of production, unit cost, selling price, total sales, and net profit of a certain kind of product;

c. make a record of processed products according to prescribed format.

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| C:\Users\DEPED\Desktop\ADM specs\ADM cover and icons\ADM Icons\What I Know.jpg | ***What I Know | LESSON 5*** |

*Multiple Choice. Choose the letter of the best answer. Write the chosen letter on a separate sheet of paper.*

1. Why is it necessary to determine the unit cost of the product?

a. to have a plenty of sales

b. to know the cost of the product

c. to have profit in selling

d. to know the price at which one sells her product

2. How will you determine the unit cost of a certain product?

a. cost of the production divided by number of servings

b. cost of the production divided by number of servings sold

c. cost of the production minus sales

d. cost of the production plus profit

3. How much is the net profit of the total sales is 235.25 php and the cost of the product is 155.50 php?

a. 79.25

b. 79.50

c. 79.75

d. 80.00

4. What items are added to determine the cost of product?

a. ingredients and unit cost

b. ingredients and sales

c. ingredients and operating expenses

d. ingredients and profit

15

5. If the unit cost of a product is 20.00 php, how much is the selling price if 50% is added to the unit cost?

a. 25.00

b. 30.00

c. 35.00

d. 40.00

6. Why should a seller determine the selling price of her product before selling it?

a. To have plenty of sales

b. to obtain the unit cot

c. to know the price at which she sells her product

d. To have profit in selling

7. How much is the cost of the receipt if the total is expenses for ingredient is 75.00 and the total coat fro operating expenses is 35.00?

a. 105.00

b. 110.00

c. 115.00

d.120.00

8. How much is the total sales if 10 jars of jellies are sold for 25.00 per jar?

a. 225.00

b. 240.00

c. 250.00

d. 255.00

9. Which of the following is not included in the steps on how to determine the selling price of the processed product?

a. List down all the expenses for ingredients

b. Make a list of operating expenses

c. List down the store where you bought your ingredients

d. Determine the number of products yield

10. Weekly inventory of the products not sold is important and this showed be equivalent to?

a. the difference between the product produced and the amount sold for the week

b. the difference between the product purchased and the product sold

c. the difference between the product produced and the product left

d. the difference between the product produced and the amount of expenses.



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|  | ***What’s In*** |

Let us define:

1. **Cost**- expenses

2. **Cost of production**- total expenses incurred in processing the product

3. **Profi**t- gain

4. **Unit cost**- the cost of product per price

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Let us study:

**In a small-scale processing operation, the following information must be recorded properly:**

1. Daily production. Record of the number of packs per product that is processed daily should be kept.

2. Daily sales. Every sale of the finished product should be recorded. A weekly inventory of the products not sold is important and this should be equivalent to the difference between the product produced and the amount sold for the week.

3. Daily expenses. All expenses incurred for the day like cost of ingredients, packaging materials, travel expense and others should be recorded.

**Procedure for determining the selling price of processed products**

The selling price of the product should be determined after computing all the expenses incurred. This is done to ensure that the seller does not lose in the selling enterprise.

**The following steps and examples are help in learning how to determine the selling price of the processed product.**

1. List down all the food ingredients purchased.

2. Make a list of the operating expenses.

a. Labor

b. Gas/ Fuel/Electricity

c. Transportation

d. Miscellaneous expenses (include all other items not included)

e. in number 1, like napkins, wrappers, etc.

f. Rental, if any

3. List down all the expenses for ingredients and the operating expenses.

4. Determine the number products yield.

5. Divide the total cost with the number of yield to get the cost per product/yield.

6. Decide how much you will add to each unit cost for the selling price. The percentage range from 15%-40% of the food cost.

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Example

The recipe prepared is Pineapple Jam.

|  |  |
| --- | --- |
| 1. Marketing List |  |
| A. Ingredients:  2 pcs. Pineapple  1 kilo refined sugar | Cost:  P30.00  P30.00 |
|  | Total Cost:  P60.00 |
| B. Operating Expenses  Gas (approx.)  Transportation  Misc. soap  3 preserving jars | P10.00  P7.50  P1.00  P20.00 |
|  | Total Cost:  P38.50 |
| C. Cost of A plus B |  |
|  | P98.00 |
| II. Number of Servings:  3 bottles pineapple jam |  |
| III. Cost per serving:  P98.50 divided by 3 bottles pineapple jam= P32.83 or P32.85@ |  |
| IV. Selling Price:  You can add from 15% to 40% of the food cost:  15% of 32.85=4.94 or 4.95  40% of 32.85=13.14or 13.15 |  |

The selling price of the pineapple jam can therefore range from P37.80 to P46.00.

The 15% increases in food cost will therefore mean a profit of 4.95 per bottle, while 40% increase will net P13.15 per bottle sold.

Financial Recording

A sample of a simple record for a product prepared and sold is shown below:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Cost of Production | | |  |  |  |  |  | Less | |  |
| Name of Product | Ingredients | Operating Expenses | Total | No. of serving | Unit cost per serving | Selling Price | No. of Servings sold | Total Sales | Cost of product | Leftovers | Net profit |
| Pineapple Jam | P60.00 | P38.00 | P98.00 | 3 botttes | P32.85 | P46.00 | 3 bottles | P138.00 | P98.00 | 0 | P39.50 |

18

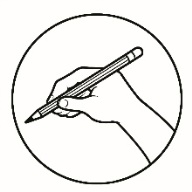
Let us remember:

Keeping records of the expenses and income help the seller keep track of the business. It will tell when she has spent the most and why; when she has made brisk business and why; and where she has to improve in terms of the expenses and sales.

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**ACTIVITY 1: Sorting and Grading Activity. Take a picture of your paper containing your computation. Then, send it to our class group chat for checking.**

List down all the expenses incurred in processing your products. Then, compute the cost of product; the unit cost of each product; and determine your selling price. Make a record of your processed products.



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| --- | --- |
|  | ***Assessment*** |

*Multiple Choice. Choose the letter of the best answer. Write the chosen letter on a separate sheet of paper.*

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19

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d. the difference between the product produced and the amount of expenses.

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b. Make a list of operating expenses

c. List down the store where you bought your ingredients

d. Determine the number of products yield

20

|  |  |
| --- | --- |
|  | ***Answer Key*** |

What I Know Assessment

1. C

2. D

3. A

4. D

5. C

6. B

7. C

8. B

9. A

10. C

1. D

2. A

3. C

4. C

5. B

6. D

7. B

8. C

9. C

10. A

***References***

Homemaking for You and Me (Food and Nutrition)

Fruits and Vegetables Processing Revised Edition

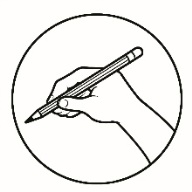
Food Processing- MATEA- Based Textbook

***Resources***

Raw Materials, Ingredients, Kitchen Utensils, Tools and Equipment

Record Notebook, ballpen, pad paper and calculator

21



|  |  |
| --- | --- |
|  | ***Assessment*** |

*Multiple Choice. Choose the letter of the best answer. Write the chosen letter on a separate sheet of paper.*

1. If the unit cost of a product is 20.00 php, how much is the selling price if 50% is added to the unit cost?
   1. 25.00
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   2. Make a list of operating expenses
   3. List down the store where you bought your ingredients
   4. Determine the number of products yield
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   1. 3 cups sugar
   2. b .4 cups sugar
   3. 5 cups sugar
   4. 6 cups sugar
7. Which of the following test is used to determine jellying point?
   1. Bubble formation
   2. Cooking test
   3. Jelmeter test
   4. Pectin test

22

1. Which of the following is one of the causes of syneresis in jams?
   1. excessive use of buffers
   2. too little acid
   3. too little pectin
   4. too much sugar
2. Which of the following is one of the steps followed in cooking jams?
   1. Add the sugar when pulp is completely softened
   2. Cook rapidly without stirring until jellying point is reached
   3. The sugar, juice and peel of sliced frits are boiled to jellying point.
   4. Boil the fruit until soft.

10. How is the fruit pulp prepared for jam making?

* 1. boiling
  2. chopping
  3. squeezing
  4. paring

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|  |
| --- |
| 1. D 2. B 3. C 4. C 5. A 6. C 7. A 8. A 9. A 10. B |

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For inquiries and feedback, please write or call:

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