

Ministry of Education
Curriculum Planning & Development Division

CSEC Agricultural Science

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Syllabus Section B: CROP PRODUCTION

Part 6: Harvesting & Post Production Management

6.4 Explain the importance of preserving crops

- Methods of preserving crops: cooling, freezing and drying (previous lesson)
- Develop a processed product from the crops cultivated



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Objectives

CSEC Agricultural Science Syllabus
Section B: CROP PRODUCTION

Objective: 6.4

6.4 Explain the importance of
preserving crops

- Methods of preserving crops: cooling, freezing and drying (previous lesson)
- **Develop a processed product from the crops cultivated e.g. pepper sauce**

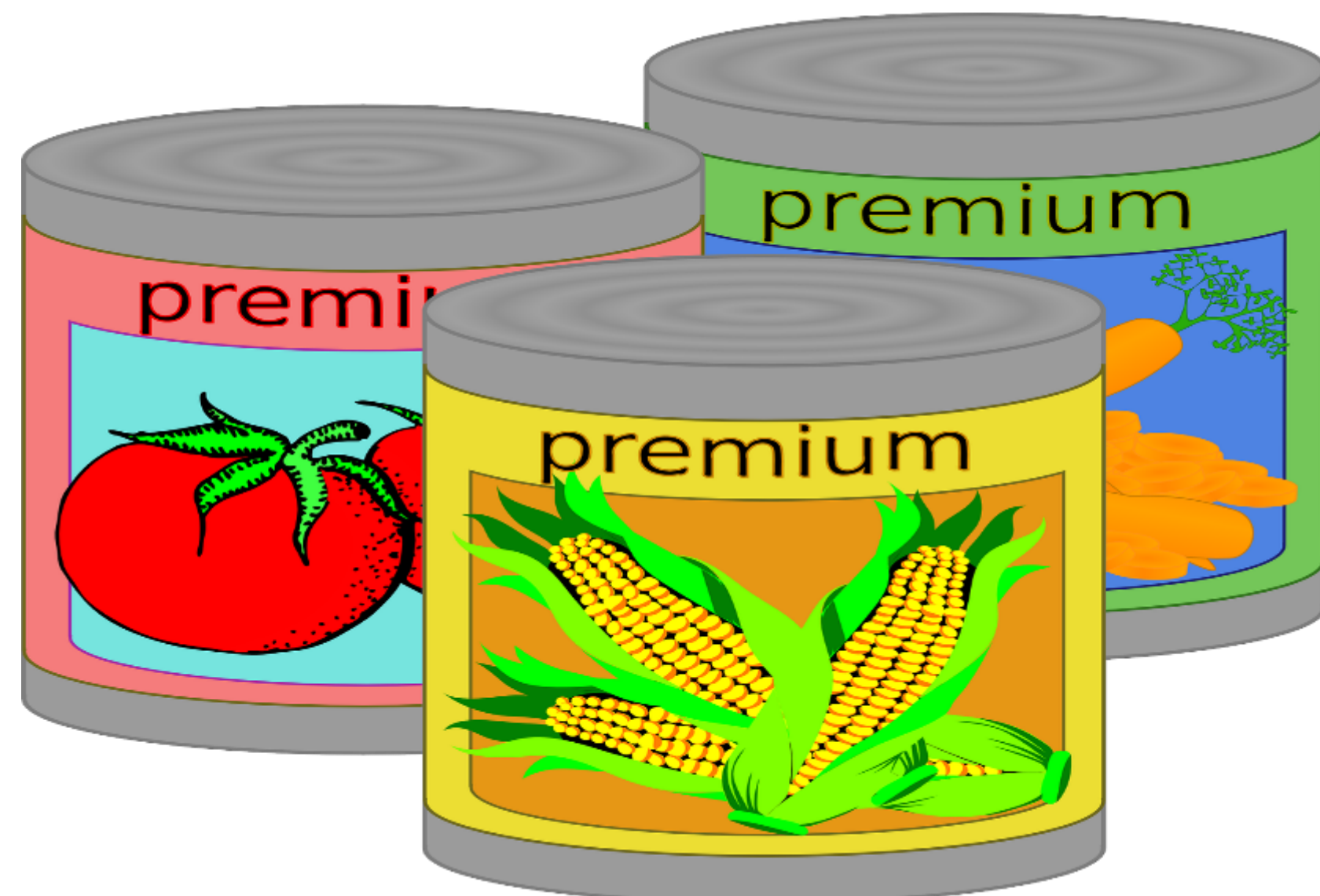


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Why should crops be preserved?

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- If fresh crop produce (e.g. vegetables, root crops, fruits) are not preserved it can spoil within a few days
- Preserving food prevents it from spoiling and increases its shelf life
- Agro-processing is the science of preserving agricultural produce
- Different methods can be used to preserve food



<https://pixabay.com/vectors/canned-food-tin-can-vegetables-149221>



<https://www.pexels.com/photo/assortment-batch-colors-cooking-625422/>

Methods of preserving crops

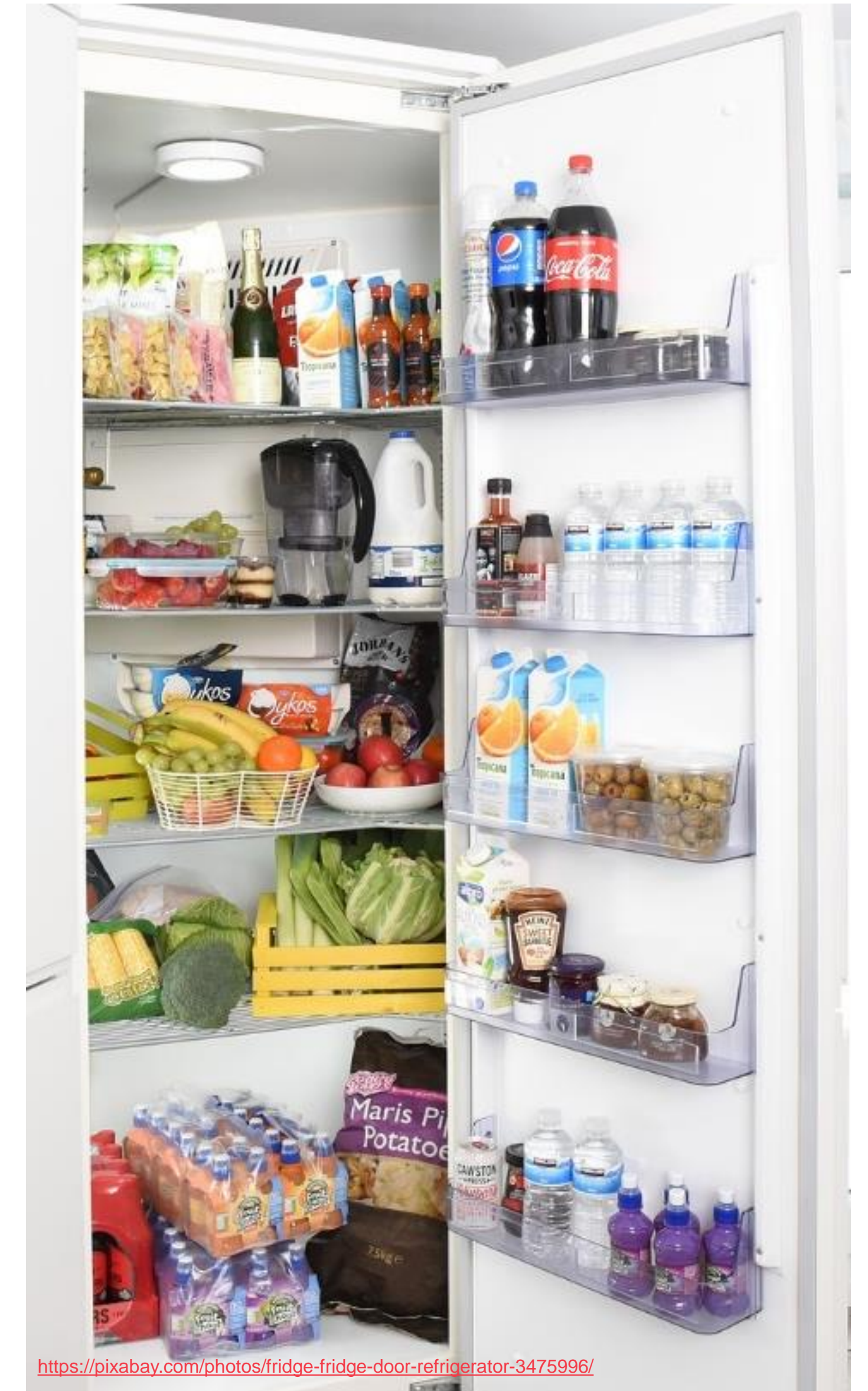
- Some methods of preserving crops are:
 - Cooling / refrigeration
 - Freezing
 - Drying
 - Smoking
 - Salting
 - Pickling
 - Pasteurization
 - Adding sugars
 - Canning & Bottling
 - Freeze drying
 - Irradiation
 - Fermentation
 - Vacuum packing
 - Atmospheric modification
 - Fresherized process



Dried peas and beans



Frozen vegetables



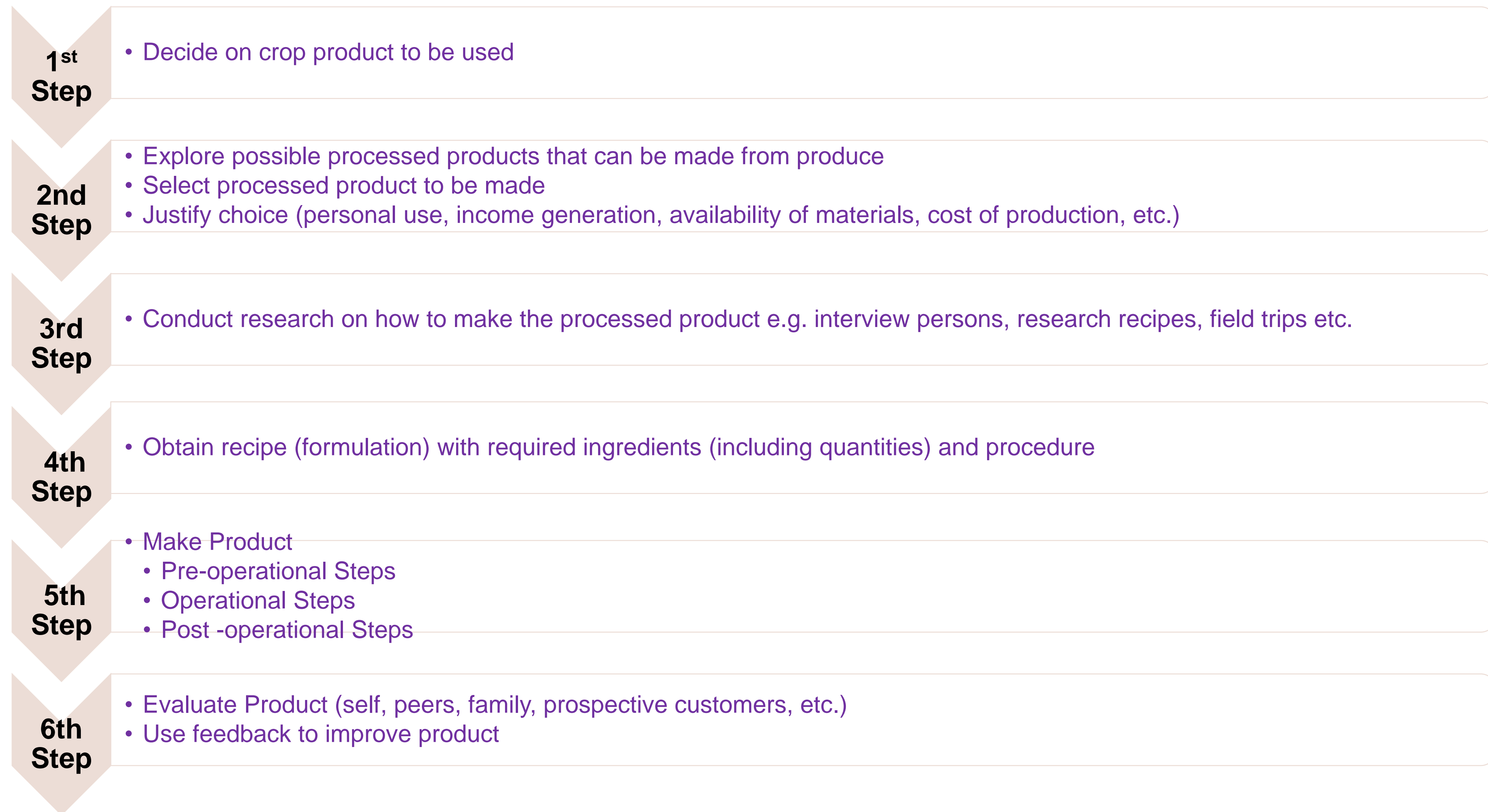
Using a refrigerator to cool food

What processed products can be made by preserving crops?

Crop	Processed Product	Preservation Method
Cucumbers	<ul style="list-style-type: none">• Fresh Salad• Pickles / Relish	<ul style="list-style-type: none">• Cooling / Refrigeration• Pickling
Tomatoes	<ul style="list-style-type: none">• Tomatoes Choka / Salsa• Tomato Ketchup	<ul style="list-style-type: none">• Heating & Cooling / Refrigeration• Heating, Adding Sugar & Bottling
String beans	<ul style="list-style-type: none">• Frozen Green Beans	<ul style="list-style-type: none">• Blanching (Heating) & Freezing
Sweet pepper	<ul style="list-style-type: none">• Dried Sweet Peppers	<ul style="list-style-type: none">• Dehydration
Hot pepper	<ul style="list-style-type: none">• Pepper Sauce• Pepper Flakes	<ul style="list-style-type: none">• Pickling• Dehydration
Cassava	<ul style="list-style-type: none">• Frozen Cassava Fries (Logs)• Cassava Flour	<ul style="list-style-type: none">• Freezing• Dehydration
Sweet potato	<ul style="list-style-type: none">• Frozen Soup Pack	<ul style="list-style-type: none">• Freezing
Yam	<ul style="list-style-type: none">• Instant Yam Flakes (Mashed Yam)	<ul style="list-style-type: none">• Dehydration
Ochro	<ul style="list-style-type: none">• Callaloo Packs• Frozen Callaloo	<ul style="list-style-type: none">• Cooling / Refrigeration• Heating & Freezing
Lettuce	<ul style="list-style-type: none">• Fresh Salad	<ul style="list-style-type: none">• Cooling / Refrigeration
Cabbage	<ul style="list-style-type: none">• Fresh Salad / Cole Slaw / Chow Mein Mix	<ul style="list-style-type: none">• Cooling / Refrigeration

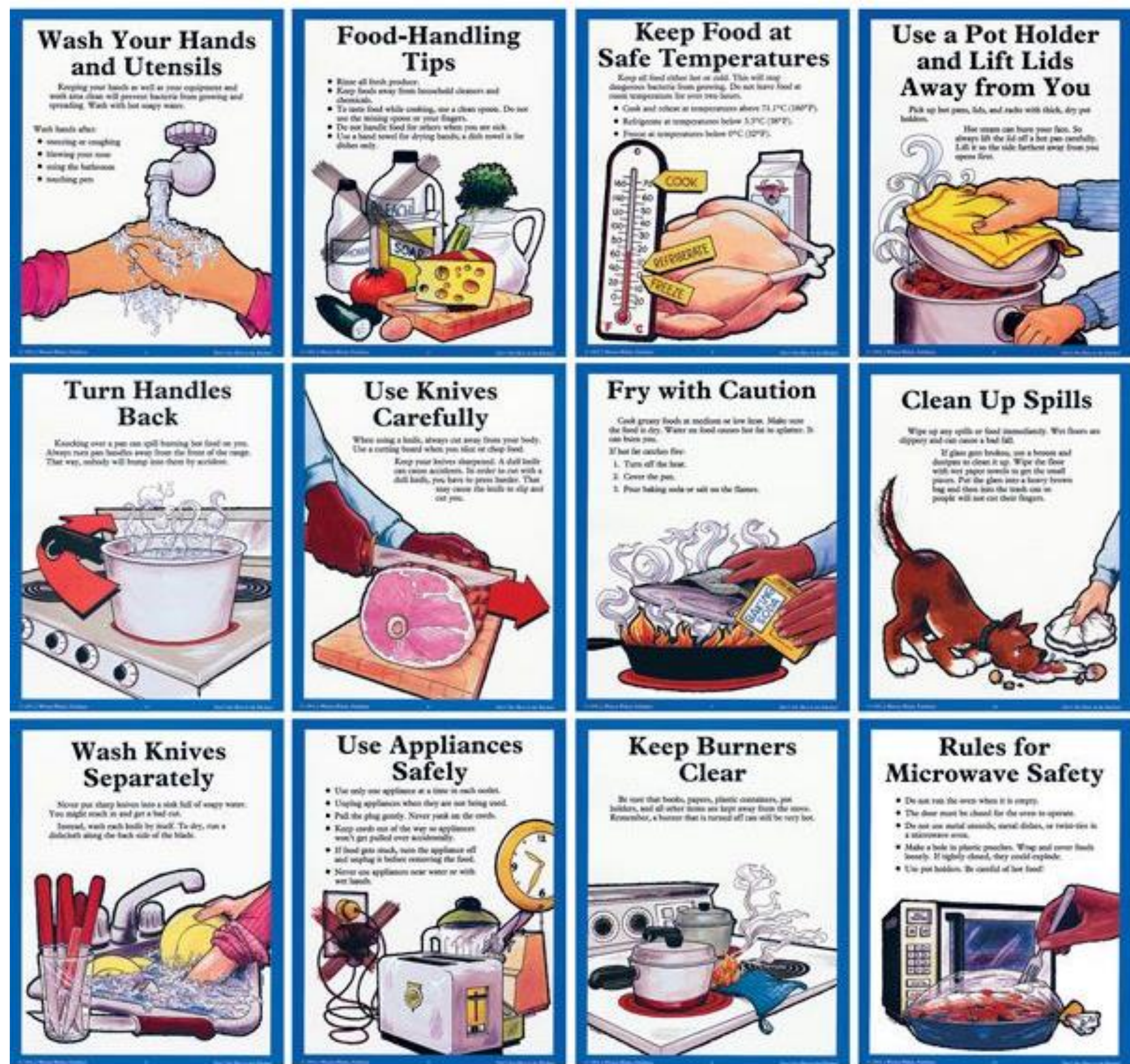
Getting Started:

Developing a processed product from crops cultivated



Basic Rules of Kitchen Safety

SAFETY in the kitchen means using precautionary methods to prevent accidents

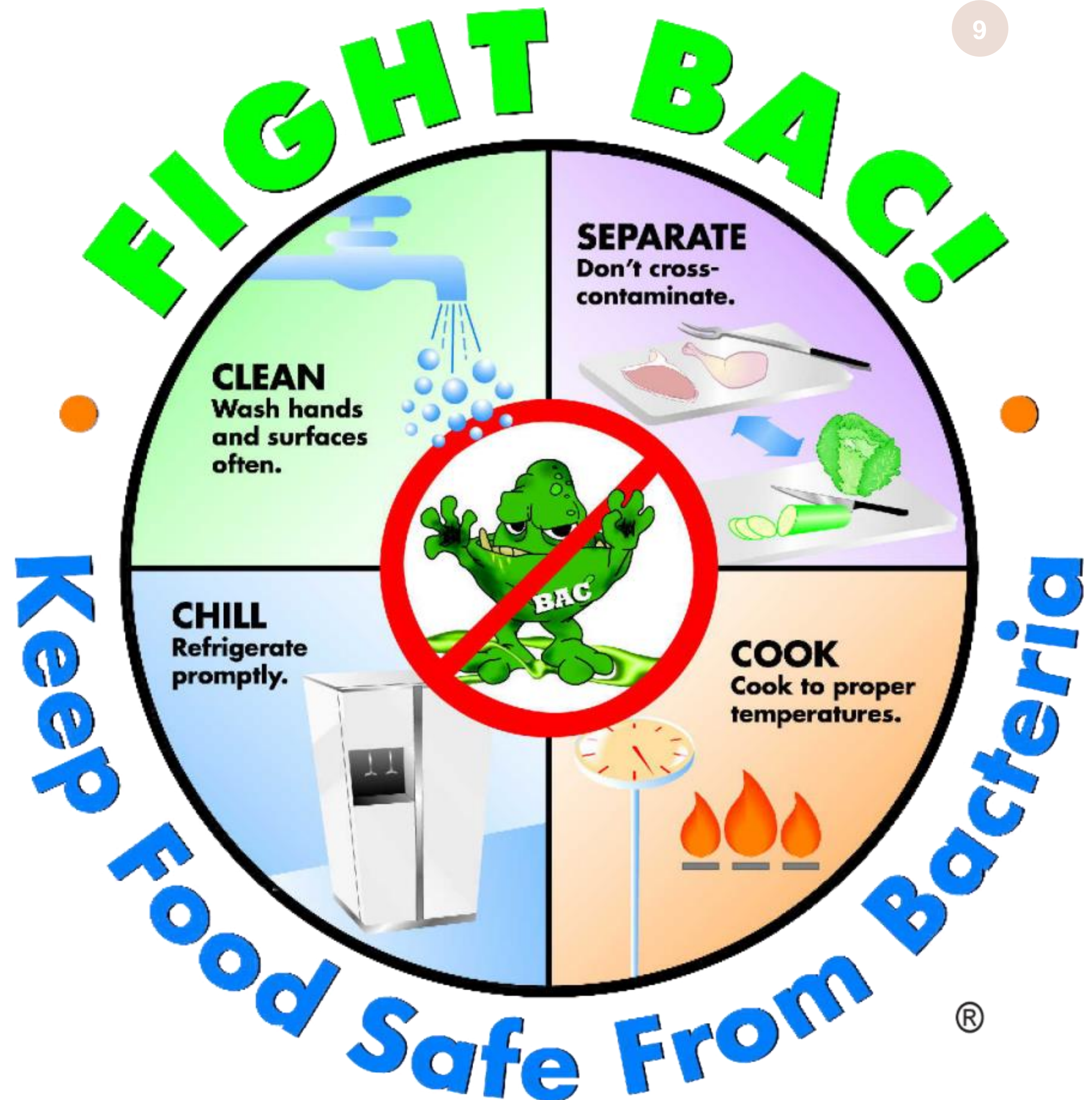


Wear appropriate
Personal
Protective
Equipment (PPE)
when preserving
food



SANITATION is the process of handling food in ways that are clean and healthy

1. Wash hands before and after handling food
2. Repeatedly wash hands when necessary – especially after coughing, sneezing or using the toilet
3. Wash dishes, pans and utensils as you use them and allow to air dry
4. When tasting food, use a separate spoon DO NOT taste using the stirring spoon. Use a clean spoon each time you taste and a separate one for each person
5. Dispose of garbage properly



Making Pepper Sauce

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Pepper sauce (hot sauce) is a condiment made from hot peppers, seasonings blended in an acid e.g. vinegar or lime juice

There are many recipes for making pepper sauce and each person may have their own unique blend of ingredients and procedure

Recipe for Pepper Sauce

(Courtesy Trini Cooking with Natasha on <https://www.youtube.com/watch?v=b8sZ5e844Vs>)

INGREDIENTS

- ¾ cup white vinegar
- 4 cloves garlic
- 10 habanero / scotch bonnet peppers
- few leaves of bandania
- 3" pc of carrot chopped (optional)
- ½ tsp. salt or to taste



Steps in Making Pepper Sauce

- **Pre-Operational**

- Prepare work area by cleaning and sanitizing
- Collect all materials, tools and equipment
- Sanitize all dishes and utensils
- Put on appropriate PPE e.g. hair net, gloves, apron, whole shoes, take off jewelry
- Sort, remove stems, wash and sanitize peppers
- Wash and sanitize bandania
- Peel and sanitize garlic and carrots

- **Operational**

- Weigh and measure all ingredients
- Pour vinegar to blender
- Add hot peppers, garlic, bandania, carrots, salts
- Blend ingredients to desired texture (e.g. chunky, smooth)

- **Post-Operational**

- Pour pepper sauce into a dried, sanitized jar
- Cover the jar, label it (indicating name of product and date made) and store for use
- Clean up work area
- Wash and pack away materials, tools and equipment
- Dispose of garbage properly



Assessment

1. Why should crops be preserved?
2. Name FOUR agro-processing methods.
3. Outline the steps in developing a processed crop product.
4. List the MAIN ingredients in pepper sauce.
5. List the steps for making pepper sauce.

Answers for Assessment

1. Why should crops be preserved?

- Prevent spoilage
- Increase shelf life

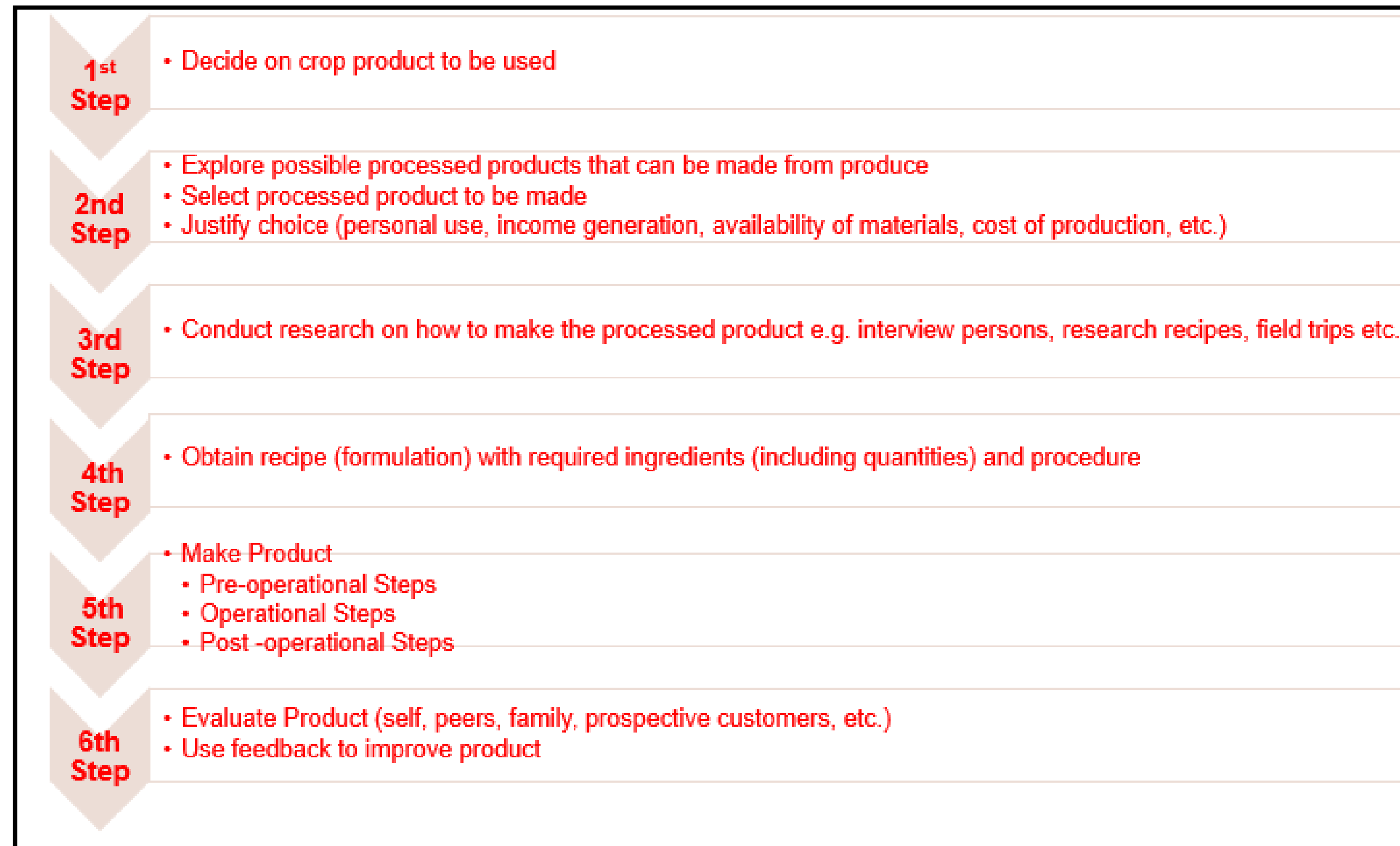
2. Name FOUR agro-processing methods.

- Any 4 answers
 - Cooling / refrigeration
 - Freezing
 - Drying
 - Smoking
 - Salting
 - Pickling
 - Pasteurization
 - Adding sugars
 - Canning & bottling
 - Freeze drying
 - Irradiation
 - Fermentation
 - Vacuum packing
 - Atmospheric modification
 - Fresherized process

Answers for Assessment

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3. Outline the steps in developing a processed crop product.



4. List the MAIN ingredients in pepper sauce

- $\frac{3}{4}$ cup white vinegar
- 4 cloves garlic
- 10 habanero / scotch bonnet peppers
- few leaves of bandania
- $\frac{1}{2}$ tsp. salt or to taste

Answers for Assessment

5. List the steps for making pepper sauce.

- **Pre-Operational**
 - Prepare work area by cleaning and sanitizing
 - Collect all materials, tools and equipment
 - Sanitize all dishes and utensils
 - Put on appropriate PPE e.g. hair net, gloves, apron, whole shoes, take off jewelry
 - Sort, remove stems, wash and sanitize peppers
 - Wash and sanitize bandania
 - Peel and sanitize garlic and carrots
- **Operational**
 - Weigh and measure all ingredients
 - Pour vinegar to blender
 - Add hot peppers, garlic, bandania, carrots, salts
 - Blend ingredients to desired texture (e.g. chunky, smooth)
- **Post-Operational**
 - Pour pepper sauce into a dried, sanitized jar
 - Cover the jar, label it (indicating name of product and date made) and store for use
 - Clean up work area
 - Wash and pack away materials, tools and equipment
 - Dispose of garbage properly

References

Laggan, N. (2016, March 23). *Trini Cooking with Natasha*. Retrieved from Trinidad Pepper Sauce Recipe - Episode 85: <https://www.youtube.com/watch?v=b8sZ5e844Vs>

Acknowledgements

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