

A Guide to Drying Moringa

Qhia txog cov Moringa npaj
muab nws ua kom muaj nqes

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This guidebook recommends best practices for drying and processing moringa leaves on small-scale farms in California. It also provides a general overview of regulations related to the processing and sale of moringa as a value-added product in California.

Phau ntawv ntawm no yuav qhia txog kev ziab cov nplooj Moringa nyob rau hauv xeev California kev ua liaj ua teb. Nws yuav qhia txog muaj ntau yam yuav tau ua raws li nyob rau hauv kev tswj hais txog kev tsim kho kom cov khoom no yog ib cov khoom uas muaj nqes rau cov tub qoob tub loo thiab tej kev yuav muaj cov khoom muaj nqes value added nyob hauv California.



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Introduction

Kev Qhia Txog

Moringa (*Moringa oleifera*) is a fast-growing, drought-tolerant tree known for its high nutritional content. Native to sub-Himalayan India, it is widely grown in tropical and subtropical regions around the world, and used in nutrition programs in developing countries because of its high levels of protein, vitamins, and minerals. These include protein, iron, calcium, potassium, and Vitamins A, E, and C, as well as antioxidants, anti-inflammatory compounds, and omega-3 and 6 fatty acids.

Moringa leaves, which have a mild spicy herbal flavor like arugula, can be easily incorporated into a wide range of recipes – salads, soups, stir-fries – as a nutritious garnish or seasoning. The dried leaf and dry leaf powder can be added to smoothies, soups, sauces, teas or used as an additive in almost any dish. The bean-like pods of the plant, called drumsticks, are also edible.

Southeast Asian and Filipino farmers in Fresno County have pioneered small-scale moringa production in California, selling mostly fresh leaves at farmers markets and to grocery stores.

In 2016, [UC Cooperative Extension Fresno & Tulare Counties](#) and [UC Sustainable Agriculture Research & Education Program \(SAREP\)](#) partnered with small-scale Central Valley farmers to identify best practices for drying moringa leaves and producing dried leaf powder as a value-added product. Drying moringa extends the life of the saleable product and gives farmers entry to additional market channels.

About Food Safety – Minimizing Risks Before, During and After Harvest

Hais txog Food Safety kev tswj kev noj haus kom huvsi – tswj kom zoo ua ntej sau qoob loo, thaum tabtom sau tej qoob thiab tom qab sau tej qoob loo:

Following Good Agricultural Practices (GAPs) for food safety is important to minimize the risk of contamination of moringa leaves with bacteria or other hazards, as well as to stay in compliance with food safety laws. Below are GAPs that are especially important for food safety during moringa production and processing.

BEFORE HARVEST:

UA NTEJ SAU TEJ QOOB LOO:

- Follow the appropriate guidelines to test your irrigation water for microbial contamination, especially if you are using surface water such as an irrigation ditch or reservoir. See the [California Small Farm Food Safety Guidelines](#) for more information on water testing requirements.
- Avoid planting moringa under structures that provide a resting spot for birds above the plants.
- Identify any food safety risks from animals entering your farm or contaminants such as dust from manure that could enter from neighboring farms. Determine the best way to reduce these risks, such as fencing or planting a windbreak.

DURING HARVEST:

THAUM TABTOM SAU QOOB LOO:

- Watch out for moringa contaminated with bird droppings, especially on plants under hoops or greenhouse frames with the plastic removed. Do not harvest moringa leaves with bird droppings. Washing the leaves will not remove the contamination from the droppings and will only spread it to other leaves.
- Practice good personal hygiene (See the *Personal Hygiene Procedures* section of this guide on page 6). This includes proper hand washing, inspecting for cuts, and avoiding contact with plants while sick.
- Train any employees and family members who are harvesting moringa on hygiene practices.
- Do not allow harvested moringa or the containers it is placed

in to contact the ground. Place harvested boxes or bins on pallets, cardboard, or other materials so they are not directly on the ground.

AFTER HARVEST:

TOM QAB SAU QOOB LOO:

- Inspect harvested moringa leaves for bird droppings. Discard any leaves that have bird droppings on them.
- Ensure that processing water is clean and potable. Do not use surface water or agricultural well water to wash moringa.
- Wash and sanitize all contact surfaces such as wash tubs and table tops, any utensils and containers.
- Avoid cross-contamination during washing by using a sanitizer product in the wash water.

Washing Moringa Leaves

Kev Ntxuav Cov Nplooj Moringa

MATERIALS

Most of the materials mentioned in this guide can be found at a local home improvement store. Sanitizers, peracetic acid test strips, and turbidity indicator cards can be purchased from farming and gardening supply stores and from online retailers. See the Info Box on page 10 for a list of online retailers where you can purchase the supplies mentioned in this guide.

KHOOM SIV

Tej khoom siv uas tau qhia nyob rau ntawm phau ntawv qhia ntawm no yeej muaj nyob hauv tej khw muaj khoom siv rau vajtse. Cov tshuaj ntxuav tes sanitizer, cov peracetic acid test strips, thiab cov turbidity indicator cards koj yeej mus yuav tau los siv nyob hauv tej khw muag khoom farming and supplying stores, thiab mus nrhiav tau nyob hauv onlines. Saib cov kev qhia nplooj ntawv page 10 mus saib cov onlines retailer chaw muag khoom qhia ntawm no koj yeej yuav tau coj los siv.

MATERIALS FOR WASHING

- 2 tubs: one to catch water from the first rinse and one for use during draining after wash
- Wash tub (approximately 12-gallon size) for sanitizer/water wash
- Perforated tub for draining
- Potable water
- Coveralls (over long-sleeved shirt and long pants)
- Chemical-resistant footwear (and socks)
- Rubber gloves
- Safety goggles (if listed on sanitizer label)
- Measuring spoons
- Plastic spoon with long handle
- Peracetic acid product that is safe for sanitation of surfaces and produce (e.g. SaniDate 5.0)
- Peracetic acid test strips
- Turbidity indicator card
- Additional sanitizer product for sanitizing food contact surfaces if needed

PERSONAL HYGIENE PROCEDURES

KEV TU YUS TUS KHEEJ KOM HUVSI

Follow these practices before and during handling moringa to avoid contaminating the leaves or processed products:

Yuav tau ua kom raws nraim li kev qhia ntawm no uantej thiab thaum yus muab cov nplooj Moringa los mus tu kom zoo cia thiaj tsis muaj kev puas paug nyob rau hauv:

1. Remove all jewelry and accessories (rings, earrings, watches, necklaces, etc.).
2. Scrub your hands with clean, running water and soap for at least 20 seconds or follow your farm's Handwashing Standard Operating Procedure.
3. Wash your hands as above after eating, using the restroom, or any other activity that could result in contamination of your hands.
4. If you have any wounds or open sores, make sure they are properly covered with a wrap and/or bandage. Fingers or hands that have new cuts on them should have a double barrier in place, such as a bandage and also a finger cot or glove. If hands will be placed in dunk tanks, long rubber gloves should be used to keep water out of the glove.
5. Put on gloves, hair nets, beard nets, and face masks before handling the moringa leaves.
6. Cover your mouth with your arm and turn away from the moringa plant, leaves, or powder when sneezing or coughing.



Examples of personal protective gear



Green healthy leaves

PRE-WASH INSPECTION

MUAB TSAUG DEJ UA NTEJ

Before drying moringa leaves, inspect them as thoroughly as possible to make sure all leaves are healthy and free of contaminants.

Ua ntej thaum yuav muab cov nplooj coj mus ziab, tshawb xyuas cov nplooj kom nws zoo huvsis tsis txhob paug.

Discard any leaves that have heavy insect damage or show signs of being infected by disease (e.g. brown, black, yellow or white spots on leaves or branches). Keep only bright green, healthy leaves.

If you see any leaves with bird droppings, discard them. Do not attempt to wash off the droppings.

Yog tias koj tshawb pom cov nplooj muaj quav noog lo rau lawm, muab nws pov tseg tsis txhob siv, thiab tsis txhob muab cov nplooj mus ntxuav.



Leaves with insect damage



Yellow leaves show nutritional deficiency



Sanitize wash tub before use



Measure and add sanitizer to water



Stir sanitizer into clean water



Test the peracetic acid concentration in your water using test strips like these.
Source: www.grainger.com

WASHING PROCEDURE

COV KEV NTXUAV UA KOM RAW S NRAIM

1. Wear required personal protective equipment, including goggles and chemical resistant footwear.
2. Wash your hands properly and wear rubber gloves.
3. Inspect, wash, and rinse the wash tubs before using. After cleaning the tubs, sanitize them by following the instructions on the sanitizer product label.
4. Fill the washtub with the amount of water desired for mixing with your sanitizer.
5. Calculate the volume of sanitizer needed for the amount of water in your wash tub and add it to the water. Stir with the plastic spoon. Test the peracetic acid concentration using peracetic acid strips to make sure the target concentration is reached.

Be sure to follow the instructions on the label to avoid using less or more sanitizer than what is recommended on the label.
6. Remove soil from the moringa leaves by rinsing with a hose or running water. Use a tub or basin to catch the water, so it does not splash on the soil.

7. Gently shake excess water off the moringa leaves after rinsing.
8. Place the moringa leaves in the wash tub with the water and sanitizer solution, submerge, and gently agitate the moringa leaves in the water. Follow the label for the minimum contact time required (e.g. 45 seconds for SaniDate 5.0). If you are placing whole branches of moringa in the wash tub, make sure all the plant material including the end of the branch is completely submerged in the water.
9. Remove the moringa from the tub and place in a perforated tub or container that is properly sanitized. See section below on how to drain leaves properly before setting leaves out to dry.
10. During the washing process, the water will become dirty, brown, and clouded. This is called turbidity. Change the water as often as necessary to keep the wash water clean and maintain the right concentration of sanitizer. Add the correct amount of sanitizer each time you change the water.
11. You can test water clarity using turbidity indicator cards and change the water in the tub if turbidity levels are high.
12. Test the peracetic acid concentration using peracetic acid test strips at least once an hour, and every time the wash water is changed. These strips will show the ppm (parts per million) of sanitizer in the water. To use the strips, you must first calculate the ppm of sanitizer present in the wash water for the amount you have added based on the product label. If the ppm on the test strip is too low, add more sanitizer in small amounts to bring it up to the recommended level.



Rinse moringa leaves with running water



Remove leaves from tub and place in perforated container



Change dirty water when needed

DRAINING THE LEAVES

After washing the moringa leaves, drain excess water before setting the leaves out to dry. Follow these steps when draining the moringa leaves:

1. Inspect, wash, rinse and sanitize your perforated tub before using.
2. Place the washed moringa leaves in the clean perforated tub or container.
3. Make sure the perforated container does not touch the ground and is placed on top of a sanitized surface.
4. Leave the moringa in the container for 10 to 15 minutes to drain before setting out to dry.



Perforated tub, sanitized and ready for use



Moringa leaves draining in perforated tub

The following is a list of the materials and equipment purchased for this project:

Cov khoom siv hauv qab ntawm no yog cov khoom uas yuav tau yuav coj los siv:

- Metallized reclosable food bags, 2.5 mil poly.
FDA and USDA compliant.
ULINE – www.uline.com
- Crimper Hand Sealer
ULINE – www.uline.com
- 100 Stone Grain Mill
Mockmill – us.mockmill.com
- Turbidity Test Kit LaMotte
www.lamotte.com/en/browse/5887.html
- Blender
Ninja Kitchen – www.ninjakitchen.com
- Dehydrator
Excalibur – www.excaliburdehydrator.com
- SaniDate 5.0
BioSafe Systems – www.biosafesystems.com/where-to-buy
Arbico Organics – www.arbico-organics.com

Note that mention of commercially available products does not constitute an endorsement by the University of California.



REMOVING LEAVES FROM BRANCHES (DELEAFING)

DE COV NPLOOJ TAWM NTAWM TUS KAV

Moringa leaves can be removed from the stems and branches during the washing process, after washing is completed, or after drying is completed. However, deleafing after the washing process reduces the risk of contamination. You may want to experiment to find what works best for your process.

Remove the moringa leaves by holding the base of the main branch and gently sliding your hand down the branch, and remove any pieces of stem that break off from the main branch.

Follow the *Personal Hygiene Procedures* section of this guide (p. 6) before handling moringa leaves. Below are a few options for when to strip the leaves off the branches. Note that the drier the leaves are, the easier it is to remove them.

DIFFERENT METHODS TO DELEAF:

SIV NTAU YAM KEV DE COV NPLOOJ:

- **After the pre-wash inspection and before starting the wash process.** Remove the leaves and place them inside a perforated container to do the first rinse with running water.
- **After the first rinse and before the wash with sanitizer.** Remove the leaves after rinsing and place directly in the sanitizer wash. After the required amount of time, remove the leaves from the sanitizer solution with a perforated container such as a colander.
- **After washing the leaves in the tub with the sanitizer.** Drain the branches as much as possible before deleafing. Remove the leaves from the stems and set in a clean, perforated tub to continue draining.
- **After drying is complete.** Drying with the leaves still on the stems usually takes longer, but leaves can be easier to remove when dry.

Drying and Processing Moringa

Muab Ziab Thiab Muab Zom Ua Lwm Yam

Dry moringa leaves can be sold whole as a value-added product that can be used for tea or mixed with herbs and added to savory foods as a condiment. Moringa leaves can also be ground into a fine powder that can be added to smoothies, desserts or other foods.

DRYING MORINGA LEAVES

ZIAB COV NPLOOJ MORINGA

Moringa leaves can be dried using several different methods. For each method, clean and sanitize all food contact surfaces and keep moringa leaves from any contact with non-sanitized surfaces.

DRYING MORINGA INDOORS

ZIAB NPLOOJ MORINGA HAUV TSEV

If you are planning to sell moringa leaves or powder under a Cottage Foods Act permit, you must dry moringa in your home kitchen. Using a fan is recommended to increase air circulation and avoid the development of mold. Central air conditioning also can help circulate air and remove moisture. Moringa leaves can be placed on screens or racks to dry. In tests of indoor drying in an air-conditioned room kept between 68 – 76 °F (20 – 24 °C) and using a box fan for circulation, moringa leaves were 90% dry after 54 hours. You may need to experiment to find the right amount of drying time for your indoor temperature and air circulation. For indoor drying, longer than 54 hours is recommended to completely dry moringa leaves.

USING A DEHYDRATOR

SIV LUB DEHYDRATOR ZIAB

Dehydrators provide a constant temperature for drying moringa leaves on racks. The leaves dry quickly and do not need a high temperature. In trials with a commercial dehydrator, moringa leaves dried at a constant temperature of 110 °F (43 °C) were dry after 4 – 6 hours. (See the Info Box on page 10 on for a list of online retailers where you can purchase the supplies mentioned in this guide.)

DRYING MORINGA OUTDOORS

ZIAB NPLOOJ MORINGA SAB NRAUM ZOOV

For drying moringa leaves outdoors, use an enclosure or screen to protect the leaves from contaminants such as dust and insects. It is best to dry the leaves under full or partial shade, since ultraviolet radiation can destroy antioxidants and vitamins in the leaves. Leaves may be dried on racks or by hanging in bunches. In outdoor drying trials in Fresno, CA during the month of August, moringa leaves were dried inside an enclosed plastic hoophouse with screened vents in the sides to allow air circulation. Temperatures reached a maximum of 133 °F (56 °C) during the hottest part of the day and dropped as low as 57 °F (14 °C) at night. Moringa leaves placed on racks with mesh trays were dry after 32 hours. Hanging bunches of moringa stems and leaves took longer to dry, reaching about 90% dry after 54 hours.

Drying Method	Temperature Range	Recommended Drying Time
Indoor	68 – 76 °F (20 – 24 °C)	54 – 72 hours
Dehydrator	110 °F (43 °C)	4 – 6 hours
Outdoor Vented Hoophouse	57 – 133 °F (14 – 56 °C)	32 – 72 hours

GRINDING DRY MORINGA LEAVES

KEV ZOM COV NPLOOJ MORINGA

Consider the following when grinding moringa leaves into powder:

- Research commercial blenders, grinders or mills that are suitable for grinding small moringa leaves to a fine powder.
- Look for blenders, grinders or mills that will not overheat when grinding large amounts of moringa leaves.
- See the *Personal Hygiene Procedures* section of this guide (p. 6) before handling moringa leaves.
- Once the moringa leaves are ground into powder, store the powder in a container that is water, air and lightproof. See the *Packaging, Sealing and Storing Moringa* section (p. 14) for further recommendations.
- Links to websites for the mill and blender used in this project can be found in the Info Box on page 10.



Moringa leaves on drying racks



This mill was used for research on dried moringa leaves.



Before grinding the dried moringa into powder using the mill above, a blender with stacked blades – such as those in the photo to the left – was used to grind the leaves into small pieces.

Packaging, Sealing and Storing Dry Moringa

Muab Ntim Cia, Ntim Hnab Yas Cia thiab
Muab Cov Nplooj Qhuav Lawm Khaws Cia



PACKAGING AND STORING DRY MORINGA

MUAB NTIM CIA THIAB MUAB COV NPLOOJ QHUAV LAWM KHAWS CIA

If you will be drying large amounts of moringa leaves and storing them for grinding and/or packaging at a later time, consider the following:

- Review the *Personal Hygiene Procedures* section of this guide before handling moringa leaves.
- Package moringa in a clean, dry container or bag (e.g. large reclosable bags) that is water, air, and lightproof to help keep the product fresh and free of mold.
- If the container or bag is transparent, place it inside a larger container that is lightproof before storing.
- To avoid rehumidification and to keep moringa leaves or powder safe from mold, **temperature** and **humidity must be** controlled in packaging and storage rooms. Store at room temperature of approximately 70 °F.

When packaging moringa in small amounts for personal use or sale, use packaging that is clean and dry and that keeps out water, air, and light, such as a reclosable, metallized bag. See the Info Box on page 10 for where to purchase reclosable, metallized bags.



SEALING PACKAGES

NTIM HNAB YAS CIA

Sealing moringa leaves or powder packages intended for sale or long-term storage serves as an additional safety step to preserve the freshness of the product and to keep it free from moisture and mold.

A handheld heat sealer is safe to use with the metallized bags mentioned above. The photos on this page show a metallized bag being sealed and a bag after it was sealed and labeled.

Selling Moringa as a Value-Added Product

Kev Muag Cov Moringa Uas Tau Muab Ua Kom Muaj Nqes (Value Added)

There are different state and federal regulations that apply to the sale of dried and/or processed moringa. Below is an overview of some permits and licenses you may need to consider before selling moringa as a value-added product through different types of market channels. For more detailed information on each type of regulation, contact your local agency and visit our website at: <http://ucanr.edu/moringa/permits>.



REGULATIONS THAT APPLY TO SELLING MORINGA AT A FARMERS' MARKET

COV CAI LOS TSWJ KEV MUAG COV MORINGA NYOB RAU FARMERS' MARKET

Obtain a Certified Producer's Certificate

- You must have a valid Certified Producer's Certificate (CPC) if you wish to sell at a Certified Farmers' Market in California. You can apply for a Certified Producer's Certificate from the [California Department of Food and Agriculture](#) (CDFA).

Label your products correctly

If you are selling your product in a container, then you must label the container with the following information:

- Your farm name, address, and ZIP code
- Name of the produce in the container
- Quantity of the produce in the container

If you are selling your product by weight, you need to use an approved scale

You need to use a scale approved by the Division of Weights and Measures at your county Agricultural Commission.

All the regulations above for selling fresh moringa also apply to selling dried leaf moringa. In addition, if you want to sell dried moringa, there are some additional regulations that apply to you.

For dried moringa, you need to get the applicable processing license

- ☐ Are you drying the moringa leaves in your home kitchen?
- ☐ Does your processing operation have no more than 1 full-time (or 2 part-time) employees, not including immediate family members?
- ☐ Do you plan on selling \$50,000 or less annually of dried moringa?
- ☐ Do you plan on selling dried moringa only directly to consumers within your county and/or to other counties in California that specifically chose to allow the sale of cottage food products from other counties?

If you answered **YES to all** of the above, then you can apply for a **Class A Cottage Food Operator (CFO) License**. (There is also another class of cottage food operator's license, **Class B** that allows you to sell your product indirectly, to restaurants and stores, as well as directly to consumers, but that license is slightly more expensive.)

If you answered **NO to any** of the above, then you will need to either get a **Class B Cottage Food Operator License** or you will also need to apply for a **Processed Food License**, which requires you use a certified commercial kitchen. See page 19 for more information.

To apply for a Cottage Food Class A License Registration

Apply with the CA Department of Public Health for your county. You will need to renew your Class A Cottage Food Operator (CFO) registration annually. Visit <http://ucanr.edu/moringa/permits> for additional steps on obtaining a CFO license.

You may need to comply with the FSMA Preventive Controls Rule

If you are a farm that is drying and packing moringa leaf, then you are **EXEMPT** from the FSMA Preventive Controls Rule. Note that you will still need to be in compliance with the FSMA Produce Rule, unless you qualify for a full or partial exemption from the Produce Rule. This is true if you are additionally processing moringa that was purchased from another farm.

If you are a farm that is drying and **crushing/grinding** and packing moringa leaf, then you are **SUBJECT** to the FSMA Preventive Controls Rule as a Farm Mixed-Type Facility.

See page 19 for more on the FSMA Preventative Controls Rule.

Labeling Requirements for Cottage Food Products

Your product labeling needs to include the following information:

- The name of your food product
- The name, city, and zip code of the CFO operation which produced the cottage food product. If the CFO is not listed in a current telephone directory, then a street address must also be included on the label.
- The words “Made in a Home Kitchen” or “Repackaged in a Home Kitchen” as applicable, in 12-point type must appear on the principal display panel.
- The registration or permit number of the CFO which produced the cottage food product and the name of the county of the local enforcement agency that issued the permit number.
- The ingredients of the cottage food product, in descending order of predominance by weight, if the product contains two or more ingredients.
- The net quantity (count, weight, or volume) of the food product, stated in both English (pound) units and metric units (grams).
- A declaration on the label in plain language if the food contains any of the major food allergens such as milk, eggs, fish, shellfish, tree nuts, wheat, peanuts, and soybeans.

More information about [Cottage Food Product Labeling Requirements](#), visit the CA Dept of Public Health website on Cottage Food Operations.

REGULATIONS THAT APPLY TO SELLING MORINGA TO A RESTAURANT, GROCERY STORE OR DIRECT RETAILER

COV CAI LOS TSWJ KEV MUAG MORINGA NYOB RAU COV CHAW NOJ MOV, KHW MUAG KHOOM NOJ LOS YOG KHW MUAG KHOOM

Establish your farm as an “approved source”

Restaurants, grocery stores, and direct retailers are required by law in the state of California to purchase products and ingredients from “approved sources”.¹

What does it mean to be an “approved source”?

An “approved source” is “any whole uncut fruit or vegetable grown or produced in compliance with all applicable federal, state, or local laws, regulations, and food safety guidelines issued by a regulatory agency”.²

An “approved source” is also a food processor, manufacturer, or distributor that is in “conformity with applicable laws, or, in the absence of applicable laws, with current public health principles and practices, and generally recognized industry standards that protect public health”.³

A few ways of establishing your “approved source” status are listed below

For more information on becoming an “approved source”, visit <http://ucanr.edu/moringa/permits>.

- Document and attest that you are following California Department of Food and Agriculture’s [Small Farm Food Safety Guidelines](#). Health and agricultural laws are increasingly pointing to these as a set of standards that small farms must follow.⁴
- Document that you are either exempt from or in compliance with the Food Safety Modernization Act (FSMA) regulations, specifically the Produce Rule.
- If you already have a Certified Producer’s Certificate from selling at Certified Farmers Market, this may establish you as an “approved source”. The law has been interpreted as “permitting the Certified Producer’s Certificate to act as documentation of “approved source” status for purposes in addition to selling at Certified Farmers Markets, such as selling to a food facility, not just directly to consumers.”⁵

¹ Health and Safety Code § 113789: “ ‘Food facility’ ” means an operation that stores, prepares, packages, serves, vends, or otherwise provides food for human consumption at the retail level, including, but not limited to, the following: (1) An operation where food is consumed on or off the premises, regardless of whether there is a charge for the food.”

² Health and Safety Code § 113735

³ Health and Safety Code § 113735

⁴ *Legal Eats: Legal Resources for Food Justice Enterprises*, Sustainable Economies Law Center, 2016

⁵ *Legal Eats: Legal Resources for Food Justice Enterprises*, Sustainable Economies Law Center, 2016; p. 34

Label your products correctly

When selling produce to a retail food facility, you must label your containers with the following information:

- Your farm name, address, and ZIP code
- Name of the produce in the container
- Quantity of the produce in the container

Give your buyer a receipt

Any time you sell produce to a restaurant, store or other food facility, you must also provide a receipt that lists:

- Date of sale
- Your farm name, address, and ZIP code
- Identity and quantity of the produce purchased

If you are selling your product by weight, use an approved scale

You need to use a scale approved by the Division of Weights and Measures at your county Agricultural Commission.

Obtain the applicable processing license

- ☐ **Are you drying the moringa leaves in your home kitchen?**
- ☐ **Does your processing operation have no more than 1 full-time (or 2 part-time) employees, not including immediate family members?**
- ☐ **Do you plan on selling \$50,000 or less annually of dried moringa?**
- ☐ **Do you plan on selling dried moringa only within your county and/or to other counties in California that specifically chose to allow the indirect sale of cottage food products from other counties?**

If you answered **YES to all** of the above, then you can apply for a **Class B Cottage Food Operator Permit**. (There is also another class of cottage food operator’s license, **Class A**, but that license only allows you to sell your product directly to consumers, such as at farmers’ markets.)

If you answered **NO to any** of the above, then you will need to seek out a licensed commercial kitchen or a co-packer to dry your moringa. You will also need to apply for a **Processed Food License**, which requires you use a certified commercial kitchen.

To apply for a Cottage Food Class B Permit

- Complete the operational statement application.
- Submit a label of your product for review along with your application to the county Environmental Health Department.
- Pay annual registration fees.
- Complete food processor course approved by CDPH within 90 days of being registered. Note: until the State Department of Public Health develops a food processor course as required by law, Fresno County Environmental Health Division will accept a California Food Handler Card – valid for 3 years. [A list of Food Handler Training classes](#) can be found on ANSI Accreditation' website: www.ansi.org.
- Pass a kitchen inspection by Environmental Health (prior to processing).

Apply with the CA Department of Public Health for your county

You will need to renew your Class B Cottage Food Operator permit annually.

Your product packaging will need to include the following information

See *Labeling Requirements for Cottage Food Products* in blue box on page 17.

To apply for a Processed Food Registration License

- Identify a commercial kitchen or a co-packer where you will be drying your moringa if applicable
- Ensure that your drying set up meets food safety requirements
- Submit the PFR registration and applicable fees
- Complete a facility inspection

Apply with the California Department of Public Health

- A PFR license is valid for 1 year.
- Obtaining a PFR can take 90-120 days.
- Fees are based on the number of employees and facility size. Fees range from \$348 to \$1,790 (in 2019).
- You will also be asked to pay a food safety fee of \$100. However, if your gross annual revenue from the registered processed food business is \$20,000 or less, you can request a fee exemption.

For information about **Processed Foods Registration Labeling Requirements**, visit the CA Dept of Public Health website under General Food Labeling Requirements.

You may need to comply with the FSMA Preventive Controls Rule

If you are a farm that is drying and packing moringa leaf, then you are EXEMPT from the FSMA Preventive Controls Rule. Note that you will still need to be in compliance with the FSMA Produce Rule, unless you qualify for a full or partial exemption from the Produce Rule. This is true if you are additionally processing moringa that was purchased from another farm. (See the Resources section to find information on your compliance status with the FSMA Produce Rule.)

If you are a farm that is drying and **crushing/grinding** and packing moringa leaf, then you are SUBJECT to the FSMA Preventive Controls Rule as a Farm Mixed-Type Facility.

The Farm Mixed-Type Facility designation requires that the low-risk processing take place on your farm. However, if processing does not take place on the farm – for example, if you are using a commercial kitchen for dehydrating – you could still receive QUALIFIED EXEMPTION based on the Very Small Business designation (less than \$1 million in annual sales of human food – 3 year rolling average).

Resources

Muaj Ntau Qhov Kev Pabcuam

RESOURCES ON FOOD SAFETY GUIDELINES AND GOOD AGRICULTURAL PRACTICES:

KEV PABCUAM TXOG FOOD SAFETY GUIDELINES THIAB KEV TSWJ UA RAWS KEV NYIAM HUV:

California Small Farm Food Safety Guidelines
California Department of Food & Agriculture (CDFA)
www.cdfa.ca.gov

Good Agricultural Practices (GAP) &
Good Handling Practices (GHP)
United States Department of Agriculture (USDA)
www.ams.usda.gov

Introductory Factsheet on Blancing Food
Safety & Organic Requirements
Community Alliance with Family Farmers (CAFF)
www.caff.org

RESOURCES ON SELLING VALUE-ADDED PRODUCTS:

KEV PABCUAM TXOG KEV MUAG COV MORINGA UAS YOG VALUE-ADDED PRODUCTS:

Do you Qualify as a Cottage Food Operation?
Flowchart
Fresno County Environmental Health
www.co.fresno.ca.us

Processed Food Registration Permit Timeline
Community Alliance with Family Farmers (CAFF)
www.caff.org

Value-Added On-Farm Processing: Regulatory Considerations

Community Alliance with Family Farmers (CAFF)
www.caff.org

Close Up on Food Labels:
Information for California Food Processors
California Department of Public Health
www.cdph.ca.gov

Selling Produce in Santa Clara County: A legal guide
for small stores, urban farms and gardens
Sustainable Economies Law Center
www.selc.org

For resources on small business development in Fresno county, contact:

KEV pabcuam txog lagluam nyob hauv Fresno County, hu rau:

Office of Community and Economic Development
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559-278-0542 Direct Line
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<http://www.fresnostate.edu/academics/oced/about/>

To learn more about moringa research in Fresno county, contact:

Mus tshawb nrhiav txog cov Moringa hauv Fresno County, Hu rau:

University of California Cooperative Extension
Fresno & Tulare Counties
Ruth Dahlquist-Willard, Farm Advisor
rdahlquistwillard@ucanr.edu
(559) 241-7513
<http://smallfarmsfresno.ucanr.edu/Crops/Moringa/>

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