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# Eating Insects: A Community Action Toolkit

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2018-2019

Dear Reader,

For our senior capstone project, as a part of the Franke Global Leadership Initiative at the University of Montana, we created a toolkit to help communities across the United States integrate entomophagy into their communities. Our group spent an entire school year researching the benefits and possible downsides to entomophagy, which is the **practice of eating insects**. Through our extensive research, we found 2 major issues that we wanted to address in our project: the psychological aversion, as well as the lack of regulation and policy. The resources we have created, and compiled help spread awareness and inform people of this sustainable practice. Entomophagy is not a new idea. In fact, archaeological evidence suggests humans have been eating insects for over 7000 years. Today, two billion people around the world from over 3,000 ethnic groups and 130 countries include insects in their diets. We hope to normalize entomophagy in the United States and the Western world.

In this toolkit, you will find a draft resolution that was accepted by the Missoula Energy and Climate team, some helpful tips on holding an insect tasting event, some recipes and four videos including a mini documentary, an informational video and 2 cooking videos. We hope you are inspired to incorporate insects into your diet!

Bon Appétit!

All the best,

Lily Chumrau, Charlotte Langner, Mary McCormick, Freya Sargent and Ellen Sears

Resolution of Missoula City Council adopting further commitments to the Community Climate Smart Action Plan of the City of Missoula.

BE IT RESOLVED by Missoula City Council:

WHEREAS the October 2018 report entitled, “Special Report on Global Warming of 1.5°C” by the Intergovernmental Panel on Climate Change and the November 2018 Fourth National Climate Assessment report found that human activity is the dominant cause of observed climate change over the past century;

WHEREAS climate change impacts food security through diminishing access to fresh water and a change in the distribution of arable land by exacerbating drought in the U.S.’s most fertile agricultural areas;

WHEREAS entomophagy, the practice of eating insects, has many advantages that contribute to a sustainable food system—

1. Insects provide sufficient dietary energy for humans, are comparable to beef in protein content, and are rich in micronutrients;
2. Insects have high feed-conversion efficiency, which is an animal’s capacity to convert feed mass into increased body mass;
3. Insects can be reared on organic side streams, reducing environmental contamination, while adding value to waste;
4. Insects require significantly less water and land than traditional livestock;
5. Insects emit relatively few greenhouse gases and relatively little ammonia;

WHEREAS insects are already a common food source—

1. Entomophagy has existed as a common practice for 7000 years;
2. Entomophagy occurs in 80% of the world’s nations with two billion people including insects in their diet;

WHEREAS Montana is a leader in the agriculture industry—

1. Agriculture is consistently Montana’s leading industry;
2. Montana Department of Agriculture allows insects in their definition of agricultural produce;
3. Insect farming is an opportunity to sustainably expand Montana’s agricultural sector;

THEREFORE, BE IT RESOLVED that Missoula City Council, in pursuit of climate change mitigation and adaptation,

AFFIRMS support for the personal and commercial transition toward a diverse and sustainable diet that includes insects;

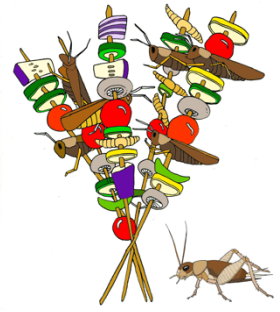
AFFIRMS support for policy development related to insect rearing, storage, and distribution;

AFFIRMS the intent to work with the Health Department to develop food safety and licensing requirements;

AFFIRMS the intent to create a city ordinance to explicitly define insects as food;

AFFIRMS support for integrating entomophagy into the Community Climate Smart Action Plan of the City of Missoula.

## Hosting an Insect Tasting Event



*So, you want to host an insect tasting event... what a great idea!*

*Here are some helpful tips to get you started:*

- Crickets contain chitin. If you're allergic to shellfish, don't eat them. Make this abundantly clear to potential tasters.
- Check with your local Health Department to see if you need a food permit. This is especially important if you plan on cooking your own recipes. Do this well in advance because processing time can take up to a couple months.
- Determine whether you want to have the insects hidden (like in cricket flour, baked into banana bread) or exposed (like whole roasted crickets). Maybe you want to have both options to appeal to a wide audience. Some will be more timid about eating insects and some will be brave and eat a whole insect without hesitation!
- Always taste your samples before you hand them out. You want to make sure the taster is associating a great flavor with insects.
- Buy sampling cups/plates/utensils/napkins so that eating samples is made easy. Be sure to follow food safety rules by using gloves or utensils and not touching the food with unwashed hands.
- Advertise on social media beforehand! You could even create a hashtag so that when people post about the event, they can use the hashtag to see similar posts such as #eatbugs.
- Play into the “wow factor!” People who grew up in western cultures are not typically accustomed to eating insects. Redirect their attention to associate insects with other familiar foods like crustaceans or shrimp.

- When people sample the food, encourage them to post about their experience on social media to spread the word and encourage their friends to try insects.
- Run a raffle at the sampling event. Enter someone for trying a sample and draw winners at the end of the event. Prizes could include insect ingredients and recipe cards.
- Think about the aesthetics of your table: how will you design it to look fun and inviting? You could include a sign and some flyers about the nutritional and environmental benefits of entomophagy. You could decorate your table with a runner and display raffle items. You could even make a backdrop board for tasters to photograph themselves eating insects.
- Inform the tasters that eating insects is actually quite normal and it is a tradition all over the world. By eating insects, they are joining the 2 billion people that already do it!

## Quinoa Energy Balls with Insect Powder

### Ingredients

2/3 cup quinoa  
1/4 cup ground almonds  
1 tbsp insect powder  
5 large dates  
3 tbsp almond butter  
1/2 cup cranberries  
Fine coconut flakes for rolling



### Directions

1. Put quinoa, ground almonds, insect powder, dates, almond butter and cranberries in a food processor. Mix until a dough is formed.
2. Make 1-inch balls and then roll them in coconut flakes.

Optional: lightly roast cricket powder on the stovetop

Recipe from: [https://foodinsects.de/rezepte-mit-insekten/protein-power-rezepte-mit-insekten/proteinreiche-quinoa-energy-balls-mit-insektenmehl/?fbclid=IwAR35xSSzDxori3B\\_Xobby2Hy-AB9C80aWCFA-j5jUG\\_Qu6H4KkwDun\\_coE](https://foodinsects.de/rezepte-mit-insekten/protein-power-rezepte-mit-insekten/proteinreiche-quinoa-energy-balls-mit-insektenmehl/?fbclid=IwAR35xSSzDxori3B_Xobby2Hy-AB9C80aWCFA-j5jUG_Qu6H4KkwDun_coE)

## Cricket Taco with Fresh Pico de Gallo and Cilantro Lime Sauce

### Ingredients

1 cup diced onion  
1 cup diced tomato  
1 cup canned corn  
1 bunch of cilantro  
1 head of garlic  
8 oz sour cream  
4 limes  
1 jalapeño  
1 avocado  
1 package of whole dry roasted crickets (14 oz)  
Corn tortillas  
Salt and pepper to taste



### Directions

1. Pico de Gallo: Mince 4-5 cloves of garlic. Combine corn, onions, tomato, garlic and  $\frac{1}{3}$  cup of cilantro. Add 2-3 tablespoons of lime and mix. Season with salt and pepper. Set aside.
2. Cilantro lime sauce: Put sour cream, 1 cup of cilantro,  $\frac{1}{4}$  cup of lime juice and chopped jalapeño to taste in a blender or food processor. Blend and add salt as desired.
3. Warm tortillas and slice avocado.
4. Assemble tacos: pico de gallo, sliced avocado and dry roasted crickets. Drizzle cilantro lime sauce on top as desired.



## Cricket Flour Banana Bread

### Ingredients

1/4 cup (40 g) Cricket flour  
1 1/4 cups all purpose flour  
1 1/4 tsp baking soda  
3/4 tsp baking powder  
3/4 cup organic granulated sugar  
1 egg  
1 egg white  
1/4 cup plain or vanilla yogurt  
3 tbsp coconut oil  
1 tsp vanilla  
1 cup mashed bananas (approx 2 to 3 medium)  
Butter



### Directions

1. Preheat oven to 350F, and butter a 9×5 loaf pan
2. In a bowl sift together cricket powder, flour, baking soda and baking powder. Set aside.
3. In a large mixing bowl blend sugar, egg, egg white, yogurt, oil and vanilla. Blend in the bananas. Add the dry ingredients and mix until just combined. Do not over mix.
4. Pour batter into a prepared loaf pan. Bake in preheated oven for 50 minutes or until a toothpick inserted into the center comes out clean.
5. Remove from oven and let cool in pan for 5 minutes before removing.

Recipe from: [http://entomofarms.com/featured\\_item/banana-cricket-bread/](http://entomofarms.com/featured_item/banana-cricket-bread/)

## Chocolate Chirp Cookies

### Ingredients

2 1/4 cups cricket flour  
1 teaspoon baking soda  
1/2 teaspoon salt  
1 cup butter, softened  
1 cup sugar  
1/2 cup brown sugar  
1 teaspoon vanilla extract  
2 eggs  
1 12-ounce package chocolate chips



### Directions

1. Preheat oven to 375 degrees
2. In small bowl, combine flour, baking soda and salt; set aside. In large bowl, combine butter, sugar, brown sugar and vanilla; beat until creamy. Beat in eggs. Gradually add cricket flour mixture and mix well. Stir in chopped crickets and chocolate chips.
3. Drop by rounded measuring teaspoonfuls onto ungreased cookie sheet. Bake for 8-10 minutes.

Optional: add chopped dry roasted crickets to batter before baking

Recipe from: <https://www.myrecipes.com/recipe/chocolate-chip-cricket-cookies>

Image from: <https://pbs.twimg.com/media/DM6lIoJXoAECfZH.jpg>