



Workbook for participants #7

Interactive worksheets for distance learning



Food for the future

Feeding the world in a climate-friendly way



Full name Group/class

E-Mail address

Phone number Date



Contents

| | |
|---------------------|----|
| Help | 2 |
| Worksheet 1..... | 3 |
| Worksheet 2..... | 4 |
| Worksheet 3..... | 5 |
| Article 1 | 6 |
| Worksheet 4.1 | 8 |
| Worksheet 4.2 | 10 |
| Worksheet 4.3 | 11 |
| Worksheet 5..... | 12 |
| Worksheet 7.1 | 13 |
| Worksheet 7.2 | 14 |
| Worksheet 7.3 | 15 |
| Worksheet 7.4 | 16 |
| Article 2 | 17 |
| Worksheet 8..... | 19 |
| Article 3 | 20 |
| Worksheet 9..... | 23 |
| Imprint | 24 |

Dear teachers and parents,

The following **workbook for participants** is part of the learning pack “Food for the future – Feeding the world in a climate-friendly way”. It is aimed at **students and participants** in projects working through this learning pack in online classes.

Instructions on using the learning pack should be issued by a **teacher**. Teachers can find further information on this as well as other learning packs at [dw.com/learning-environment](https://www.dw.com/learning-environment)

Most worksheets require a program compatible with PDF files, such as [Adobe PDF-Reader](#) or similar. These are free-of-charge and enable participants to fill out forms. You will need a stable internet connection to watch the films.

i Help

Dear student,
Dear participant,

This **workbook** relates to the issue of “Food for the future – Feeding the world in a climate-friendly way”.

You can fill out the worksheets on the computer or laptop and save them. There are some helpful tips below.

How do I fill out the worksheets?

1. Go to the worksheet you wish to use.
2. Read the task thoroughly. Add your answers to the text field on the worksheet. Keep your answers as short as possible. You can only write in the text field.
3. Once you have filled out all the text fields, rename the PDF document and save it. If no file name has been agreed upon, it should include your last name (the file name should not be too long and should not contain any special characters).
4. You can now send your teacher your work in the saved PDF file, for example, as an attachment.

Before you begin, write your name and contact information on the **› title page**.

How do I find films and articles?

Watching films

On some worksheets, you will be asked to watch a **film**.

By clicking on a film title, you will be taken to the web page where you can watch the film. If that doesn't work, you can copy the link in brackets into the search box of your browser.

Reading articles

Other worksheets relate to articles you will need to read in order to complete certain tasks. Each article is included with the corresponding worksheet.

By clicking on the title of an article, you will be taken directly to the article without having to scroll.

Tip

At the top of each page, you will find a navigation menu.

By clicking ↶, you will return to the page you last looked at.

The ? will take you to this help page.

Click → [table of contents](#) to go back to that page.

You can use the arrows ← and → at the bottom right of the page to move between pages.

Something isn't working?

If there is anything you don't understand or if you are having technical problems (such as with the internet or the PDF file), please ask an adult for help!



Worksheet 1

Questionnaire about your favorite dish

If you are completing this worksheet alone, use your own favorite dish to answer the following **questions**.

If you are working in pairs, ask each other. Note down your partner’s name and answers on the questionnaire.

Once you have finished the exercise, you can swap the questionnaire so you each have the one about your own favorite dish. In order to do this, you can **▶ print** the page or **▶ save** and send them to each other.

Favorite dish of *(Name)*

1. What is your favorite dish?

.....
.....

2. Which ingredients are in your favorite dish?

.....
.....
.....
.....

3. Do you eat the dish on a particular occasion?

.....
.....

4. Who makes the dish best?

.....
.....

5. Do you have any memories connected to your favorite dish? If so, what are they?

.....
.....
.....
.....



Worksheet 2

Pairs of words and expressions

Climate change, nutrition and food production are connected. Two films show these connections using meat production as an example.

Before you watch the two films, mark five of the following pairs of words and expressions that you would like to work with. Before you watch the films, consider the possible connections between the two **words or expressions** in each pair.

Affluence and Meat consumption

Avocados and Water

Beef and Grains

Cow manure and Farming

Industrial livestock farming and Insects

Meat and Agricultural land

Vegetarians and Superheroes

Fungi and Population growth

Water and Beef

Forest and Animal farming

3D printers and Steak

Cattle and Greenhouse gas emissions

Then watch the following **films** and take notes about your pairs of words and expressions:

- › Film "Nutrition and Climate Change - the food of the future" (dw.com/p/3fOpK)
- › Film "Can vegetarians save the planet?" (dw.com/p/39Psl)

Put your pairs of words and expressions in the **table**, and next to them use bullet points to note down how the pairs are really connected.

| Words and Expressions | Connection |
|-----------------------|------------|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |



Worksheet 3



Puzzle: Blanca's story

This is Blanca. She often waits a long time for rain, but when it finally comes, she is still sad, and hopes it will soon ease off.

She only speaks to her son Norlan on the telephone from time to time. She would like to talk to him more often, but it's not easy. She misses him very much. Nonetheless, Blanca is happy that Norlan is not at home.

In order to understand Blanca's puzzling story, read the **▶ article "Caught between floods and drought: Farmers in Nicaragua living in uncertainty"**.

Then answer the following **questions**:

1. What is Blanca's full name and where does she live?

.....
.....

2. What is Blanca's job?

.....
.....

3. Why does Blanca often wait longingly for rain? Why is Blanca then sad when it does rain?

.....
.....
.....

4. Where does Blanca's son Norlan live?

.....

5. Why is Blanca glad that her son is not with her even though she misses him so much?

.....
.....

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Article 1

Caught between floods and drought: Farmers in Nicaragua living in uncertainty

Across the Central American Dry Corridor, communities are facing increasingly extreme weather. In Nicaragua, the region's poorest country, subsistence farmers like Blanca Landero Betarco face a daily battle.

The air is dry and the heat intense in the village of La Grecia in north-western Nicaragua. The temperature is a little more forgiving inside the modest red brick house where Blanca Landero Betarco shows off her small harvest of red beans.



Like her parents, and their parents before them, 60-year-old Betarco lives from subsistence farming – growing beans, rice, corn and wheat. However, in recent years, the land hasn't yielded enough to subsist on.

"I don't know how many more years I'll be able to stay living here on this land, in these conditions – whether I'm going to starve to death," Betarco told DW. "Because that's what this land might have in store for us: death."

La Grecia is in the Chinandega area in a region known as the Dry Corridor that extends along the Pacific coast of Central America, through Guatemala, El Salvador, Honduras and Nicaragua.

When El Niño hit from 2014 to 2016, drought laid waste to food production in the Dry Corridor. Betarco and her family made it through on the little money two of her four children earned working at local factories, but hunger became an everyday reality.

"We lost everything in those years, our whole harvests of beans, plus rice and corn," she says. "Sometimes we would skip one or two meals to make the food last longer. I don't know how we managed to survive."

For some, life in Betarco's village became unsustainable. "Some people starved to death, others got skinny," she says. "Those years were very hard around here. A lot of people left for Costa Rica, Panama and Spain."

Nicaraguans on the move

According to local NGO, the Humboldt Center, 90% of maize and 60% of bean crops in Nicaragua were lost in 2016. Another NGO, Germanwatch, meanwhile, ranks Nicaragua – the poorest state in Central America – among the most climate-vulnerable countries in the world. Rainfall there has become increasingly irregular.

"Because of climate change, the conditions for agricultural production in the Dry Corridor don't exist anymore,"

Victor Campos, director of the Humboldt Center, told DW. "That creates a food crisis, and if there isn't another kind of income available for families, it leads to famine."

According to the UNHCR, more than 55,500 people have left Nicaragua for neighboring Costa Rica in the last year. Political upheaval may be the most immediate cause, but climate change is increasingly recognized by organizations like the United Nations as a factor driving Central American migration.

Tania Guillen, a Nicaraguan researcher at the Climate Service Center Germany, told DW that with small farmers losing crops, food insecurity in Nicaragua "could be a decisive factor to migrate to other countries in the region."

Support from remittances

Betarco's 25-year-old son, Norlan Alberto Martinez Silvia, fled because he couldn't see a future in Nicaragua, partly because of the strong and lasting drought.

"I came to Costa Rica to look for better economic conditions," he told DW, as he clocked off at 6am

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Article 1

from his job as a security guard at a private school in Cartago near the Costa Rican capital of San Jose. "I worked with my mother before, but it didn't generate any money, just more or less enough food to feed oneself."

Now he can send more money back to his family than he could if he had stayed at home, where his monthly salary at a food processing plant was equivalent to \$200 (€177) a month. In Costa Rica, he earns the equivalent of \$600 (€532), and sends half to his mother. It was difficult for Betarco to see her son leave, but the money he sends is essential. "He sends me money so that I'm able to survive here," says Betarco.

Struggling to adapt

El Niño marked a low point for the Dry Corridor, but communities have continued to struggle. The Humboldt Center's latest research indicates that temperatures are rising and are likely to hit extreme highs with increasing frequency.

Betarco's last two harvests have seen little improvement on 2016 and she feels the environmental changes seem to be permanent.

"In Chinandega, we had a great river; today there is no river, it's more like a puddle."

The shortage of drinking water has also made it increasingly difficult to look after her livestock.

It now rains on only half the number of days each year compared to a decade ago. Yet too much rain in too short a period is also a problem and the Dry Corridor is seeing more frequent floods.

In May this year, a month's worth of rain fell in just five days, which means the first harvest of the year will likely fail, according to the Humboldt Center.

El Niño Spanish for "boy", "Christ child"

The term defines a natural phenomenon that occurs every three to four years, and which can lead to extreme weather events such as heavy flooding, drought or tropical storms around Christmas time. Climate change exacerbates El Niño, making it stronger and more unpredictable.

This uncertainty is one of the greatest challenges for farmers like Betarco. They can't plan when to sow as the plants can't thrive in soil that is too arid or too wet.

"Climate change has affected our production a lot," Betarco says. "It means that today it rains, tomorrow it doesn't. And then there is such heat."



Since 2016, Betarco has been measuring rainfall levels each day using a plastic tube called a pluviometer. She pays close attention to the beginning of the rainy season and measures the soil to determine when it's best to sow her seeds. It

gives her a small sense of preparedness against the uncertainty. However with the prognosis for the conditions in the year ahead not looking good, she can only hope the harvest will exceed expectations: "We still have to wait and see about this year."

12.06.2019

Author: Lise J Hermann
dw.com/p/3Jgi7



Worksheet 4.1

Favorite dish of (Name)

Quiz: How climate-friendly is my favorite dish?

Use this quiz to find out how climate-friendly your favorite dish is.

Name **three main ingredients** in your dish. For each one of them, you can collect climate points: = 1 climate point

Add the number of points, 0 – 3 depending on the number of leaves, into the column on the right. If a question is not relevant, leave it out.

The total will be calculated automatically and carried to **worksheet 4.3** where you will find the results of your quiz.

Tip

On **worksheet 4.2** you will find a list of words and expressions that might help you.

Ingredient 1

Ingredient 2

Ingredient 3

1. PREPARATION

To what extent was the ingredient processed in a factory before it was put into your favorite dish?

Ingredient

1 2 3

- Barely processed (such as *potatoes, lentils, rice, raw meat, raw fish, fresh vegetables, eggs, milk, etc.*)
- Processed (such as *pasta, bulgar/couscous, bread, canned vegetables, sugar*)
- Heavily processed food (such as *sausage, fries, chicken nuggets, fish fingers and other ready meals*)

2. FISH, MEAT OR VEGETARIAN?

Is your ingredient vegetarian?

Ingredient

1 2 3

- Yes
- No
- The ingredient is meat from the following source:**
 - Conventional meat (not organic) or meat from a wild animal (illegal hunting and/or threatened species)
 - Organic meat
 - Meat from subsistence farming or from wild animals (legal hunting, non-threatened species)
- The ingredient is fish from the following source:**
 - Fish (caught in the wild or from aquaculture without a certificate)
 - Fish (aquaculture or sustainable fishing with relevant certification)
 - Fish you caught yourself (unthreatened stocks)



Worksheet 4.1

| 1. NEITHER FISH NOR MEAT: ANIMAL OR VEGAN PRODUCTS? | Ingredient | | |
|--|------------|---|---|
| Is the ingredient an animal product or is it vegan? | 1 | 2 | 3 |
| • Vegan 🌿🌿🌿 | | | |
| • Eggs, milk 🌿 | | | |
| • Cheese, butter, cream, other animal product | | | |
| Are these products from organic farming? | | | |
| • Yes 🌿 | | | |
| • No | | | |
| 2. FRUIT, VEGETABLES OR GRAINS | Ingredient | | |
| How was the fruit, vegetable or grain grown? | 1 | 2 | 3 |
| • Conventional (non-organic) and/or in an air-conditioned greenhouse | | | |
| • Organic farming outside 🌿 | | | |
| • Homegrown (without artificial fertilizer and pesticides) 🌿🌿🌿 | | | |
| 3. SHOPPING | Ingredient | | |
| Where did the ingredient come from? | 1 | 2 | 3 |
| • Locally (growers such as local or neighboring farms) 🌿🌿🌿 | | | |
| • Regional – up to 100 kilometers away 🌿🌿 | | | |
| • Between 100 – 500 kilometers away 🌿 | | | |
| • Imported by plane or container ship | | | |
| How do you and your family shop? | | | |
| • On foot or by bicycle 🌿🌿🌿 | | | |
| • On the bus or train (public transport) 🌿 | | | |
| • By car / motorcycle / moped | | | |
| 4. USE | Ingredient | | |
| Do you use all your ingredients, or do you have some left over? | 1 | 2 | 3 |
| • I use everything for my dish, or I use what is left over later. 🌿 | | | |
| • There is something left over that gets thrown away | | | |
| TOTAL CLIMATE POINTS 🌿 PER INGREDIENT | | | |



Worksheet 4.2

Glossary of words and expressions used in the quiz

Vegetarian food contains no meat, fish or other seafood. It means not consuming other products that contain animal ingredients, such as gelatin. Vegetarians largely eat plant-based foods.

» *Question 2*

Vegan food is purely plant-based, with no animal products whatsoever. That means no cold cuts, meat, fish, honey or dairy products, such as cheese, yogurt or eggs.

» *Question 3*

Seasonal fruit and vegetables are grown outside and ripen in harmony with nature. Fruit and vegetables that are imported from distant locations are not considered “seasonal” – even if they are freshly ripened in the place where they were grown.

» *Question 4*

Regional foods are planted and grown close to where they are consumed. This saves long journeys. The term “regional” is not specifically defined. Many people interpret it to mean a distance of up to 100 kilometers from where they live.

» *Question 5*

Organic farming: Organic describes food that has been produced in an environmentally friendly way. Many countries have organic certifications to mark these products.

» *Question 2, 3 and 4*

Fish caught in the wild: Almost all seas, rivers and lakes are overfished, which means fish are being caught faster than stocks can be replenished by reproduction or migration. Numbers of tuna and swordfish have declined by 90% in the past 10 years. Only a few species of fish can now be caught in the wild without reservation.

» *Question 2*

Sustainable wild fishing: When fishing is done sustainably, quotas are used to protect species.

» *Question 2*

Aquaculture is the term used to describe fish farming. Fish produced in this way can help to counter depletion of stocks in seas and lakes.


» *Question 2*



Worksheet 4.3


Quiz score

How to score?

 = 1 *climate point*

Ingredients that imply higher than average levels of emissions, receive zero or a lower number of *climate points*. Food which is more climate-friendly receives two or a maximum of three *climate points* per question.


Working out your score

Add up the *climate points*  from all your ingredients and divide the result by three. This formula will help you:

(All points for **ingredient 1** + All points for **ingredient 2** + All points for **ingredient 3**) ÷ 3 = 

The result reveals the number of climate points your favorite dish scores. You can then look at the *climate scale* to see how climate-friendly your dish is.

Climate scale

13 - 20  **Very climate-friendly**

Congratulations!

It would be good for the planet if more people enjoyed eating your favorite dish.

6 - 12  **Moderately climate-friendly**

Your favorite dish isn't a climate killer, but it is also not a superhero of the future.

0 - 5  **Not climate-friendly**

Don't worry: You don't have to live without your favorite dish in the future just because it isn't very climate-friendly. One solution could be to eat it less often or in smaller quantities.

Tip

How to get more climate points for your favorite dish

Do you want to get more points for your favorite dish? You can do this by swapping out individual ingredients and doing the quiz again. If possible, you could replace animal ingredients, such as meat, fish and dairy, with plant-based alternatives, such as tofu, tempeh, mushrooms or plant-based milks. Avoid heavily processed fast food and replace it where you can with unprocessed ingredients, such as chicken meat instead of chicken nuggets, or fish instead of fish fingers. You should avoid foods that have been imported by plane or grown in air-conditioned greenhouses. Whenever you can, eat regional and seasonal foods. How you shop – whether on foot, by bike or in a car – is also important.



Worksheet 5

Experiment: Vegetables that can regrow

In this experiment you can use vegetable scraps generated when cooking to create a small garden on a windowsill or in your backyard. With a bit of luck, you'll soon be harvesting your own vegetables.

Regrowing works best with these types of **vegetables and lettuce**. Start by choosing one:

- Lettuce such as iceberg or Batavia
- Swiss chard, pak choi, Chinese cabbage or celery
- Leeks or spring onions (grow particularly fast)

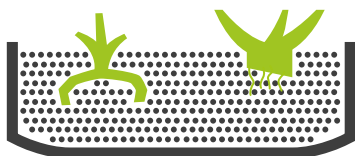
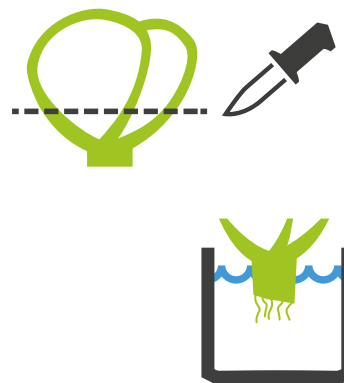
Material you will need:

- 1 head of **lettuce/vegetable** (see left)
- Small **vessel** (jar or dish)
- **Water**
- Sharp **vegetable knife**
- **Measuring tape or yardstick**
- **Plant pot and earth**

Instructions:

1. From stalk to delicate plant

- Measure 5 centimeters from the base of the stalk or stump, then using a sharp knife, cut off the leaves or stalk above that point
- Fill a small vessel (such as an old jam jar) with water and place the stalk or stump upright inside it
- Replace the water daily to avoid any decay
- When, after a few days, new shoots start to grow up from the middle of the stalk or stump, and tiny roots become visible at its base, you can transplant it into a flowerpot



2. Planting

- Dry the stump or stalk from the bottom and remove any rotting leaves or parts
- Put the plant into 2-3 centimeters of earth
- Give it a good drink of water. Now you can watch your plant's daily growth

Tip

Regrowing also works with carrots, beetroot, horseradish and onions. You won't get new vegetables from the scraps of the plant, but you will get new leaves which are good for adding flavor to soups, salads, etc.



Worksheet 7.1

Climate-friendly milk production in India

Read the [▶ article "Can less-flatulent cows help the planet?"](#).

Take note of the two **info boxes** on this page.

Cows in India

For many Indians of Hindu faith, cows are considered a holy animal. In most Indian states, slaughtering cows is forbidden. Keeping them for milk, however, is allowed.

Milk production and feed

Many industrialized countries, such as Germany or the US, have used breeding and particular feed over recent years to significantly increase milk production. High-producing animals supply up to 10,000 liters of milk per year. These animals are mostly fed concentrated feed from corn and soy. The disadvantage is that soy is often grown in South America on land created by razing areas of rain-forest. Corn also damages the environment because it is grown in monocultures using lots of pesticide.

Answer the following **questions**:

1. What is the problem?

.....
.....

2. What is the suggested solution?

.....
.....

3. What do you think of the suggested solution?

.....
.....

4. What do you like about it?

.....
.....

5. Which aspects are you critical of?

.....
.....



Worksheet 7.2

Sustainable fish farm in Kenya

Watch the >film "Keeping cool with the sun on Lake Victoria" (dw.com/p/2xrUg).

Read the **info box** "Fish farms (aquaculture)" on this page.

Fish farms (aquaculture)

Half the fish consumed in the world comes from fish farms – also called aquaculture. In most of these farms, fish are kept in very small areas, which means their feces and food remnants float through the net cages into the open water where they lead to pollution.

Chemical pesticides and antibiotics are therefore used to prevent the fish getting sick, but these put more pressure on rivers and seas.

For the breeding of some species, wild fish are caught and turned into feed. But that is rarely sustainable, because many rivers, lakes and oceans are already overfished.

Answer the following **questions**:

1. What is the problem?

.....
.....

2. What is the suggested solution?

.....
.....

3. What do you think of the suggested solution?

.....
.....

4. What do you like about it?

.....
.....

5. Which aspects are you critical of?

.....
.....



Worksheet 7.3

Improved harvests thanks to artificial light in Europe

Watch the >film **“Bumper harvest with LEDs”** (dw.com/p/39p47).

Read the **info box** “Vegetables from the greenhouse”.

Vegetables from the greenhouse

Whether greenhouse-grown fruit and vegetables are climate-friendly has less to do with the location of the facility and more to do with where the electricity for technologies, such as LED lamps, air-conditioning and heating, comes from.

Fossil-fuel energy sources like coal, oil and gas are much less climate-friendly than those derived from wind, solar and geothermal energy. This means regional produce is not always more climate friendly.

Answer the following **questions**:

1. What is the problem?

.....
.....

2. What is the suggested solution?

.....
.....

3. What do you think of the suggested solution?

.....
.....

4. What do you like about it?

.....
.....

5. Which aspects are you critical of?

.....
.....



Worksheet 7.4

Maintaining potato diversity in Peru

Watch the >film "Preserving Peru's potato power" (dw.com/p/1CTHv).

Read the **info box** "The potato" on this page.

The potato

They can be stored for a long time, are full of healthy vitamins, minerals and fiber and compared to other side dishes, are almost unbeatably climate friendly.

The potato doesn't need too much water. Farming rice, for instance, generates three times more climate-damaging greenhouse gas emissions than growing potatoes.

But processing it to make fries or potato chips makes the potato less climate friendly. The same goes for potatoes that have been imported from far away. Transportation by ship or truck results in high emissions.

Answer the following **questions**:

1. What is the problem?

.....
.....

2. What is the suggested solution?

.....
.....

3. What do you think of the suggested solution?

.....
.....

4. What do you like about it?

.....
.....

5. Which aspects are you critical of?

.....
.....

i

Article 2

Can less-flatulent cows help the planet?

Funny as it may sound, belching and flatulent cows are a serious contributor to the emissions that threaten our planet's climate. But the cows on one cattle farm in India are doing their part to pass less gas.



Cows produce methane when they pass wind. It's a potent greenhouse gas

Gau Farm is unique among India's dairy producers. Its cows are said to fart and burp less than those on farms elsewhere in the country. That may not sound particularly important until you consider the one billion cows on the planet produce a lot of methane – a greenhouse gas at least 25 times more potent than CO₂.

Located in Kota, about 500 kilometers (311 miles) south of the Indian capital New Delhi, *Gau* is home to about 130 cattle on 40 acres. “*Gau*” means cow in Hindi but it also stands for the names of the farm's three directors, brothers Gagandeep, Amanpreet and Uttamjyot Singh.

Their father set up the farm 15 years ago as a side project. Today, it's a serious business, says 27-year-old manager Amanpreet Singh. He watches carefully as his cows chew finely chopped, organic green grass and sprouts of maize. The mix results in much lower emissions than the approximately 500 liters (132 gallons) of methane a cow would usually release in a day, he says.

“We have reduced the whole gaseous emission of methane by around 60 to 70 percent just by cutting down the extra feed,” he told DW, adding that the

farm uses local “*Makkhan*” grass. Much of the feed is grown in water without soil using a technique known as hydroponics.

The brothers have been able to measure the emissions reductions by releasing the tracer gas sulfur hexafluoride and testing air samples collected around the cow's nose and mouth using a gas chromatograph.

Greens reduce methane emissions

The *Gau* farmers aren't the only ones looking to put their cows on a special fart-fighting diet. Indian scientists are looking into a number of methane reduction strategies for livestock, including feeding cattle fermented grains, as well as herbs.

“The use of oilseed cakes and a few Indian herbs also cuts down on methane emissions,” Seema Midha, an animal nutritionist at the state-owned Rajasthan Livestock Nutrition Lab told DW. “They block the availability of hydrogen for microbes living in the guts of livestock, which restricts the reaction of carbon with hydrogen to form methane.”

Local policymakers are also taking the growing evidence of a connection between feed and methane emissions into account. The state of Rajasthan's new livestock fodder policy will include recommendations for feeds that decrease methane emissions while increasing milk output.



Farm workers carefully harvest greens for an organic feed mix

The policy should provide an incentive for cattle farmers. Slaughtering cows is prohibited in Rajasthan – where Kota is located – so milk and ghee production are among the few reasons to rear the animals. Dung is another.

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Article 2

Useful poop

Despite the dramatic reductions in methane emissions, Gau Farm's cows still poop – a lot. And when dung decomposes, it also releases methane gas.

But the Singhs are putting the cows' waste to good use. Urine and cow dung go into a biogas power plant, where they generate 40 kilowatts of electricity per day. That's enough to power the entire farm, Amanpreet says. The waste makes a nutrient-rich, organic fertilizer too.

"The leftover cow dung and urine along with other vegetable or food waste and bedding materials is thoroughly mixed with earthworms," says Giriraj Sharma, who is in charge of the process. "This is very good manure for all plants, fruits, crops and vegetables."



The Gau Farm runs on electricity from its biogas plant

Dung with a spiritual purpose

The farm also sells dry cow dung cakes online via platforms such as Amazon. The semi-liquid substance is first dried and then heated in big solar cookers. Then they're mailed across India in cardboard boxes. The brothers sell about 500 to 1000 cakes a week at about 120 rupees (€1.50) for a dozen.



Ready to deliver dung products to the Amazon office

They're sometimes used for heating and cooking as well as in religious ceremonies. Hindu Yajna rituals, for example, involve prayers offered in front of a sacred fire fuelled with dung patties.

"Cow dung is very important," says Hindu priest, Pandit Ravi Shastri, at a temple near the Gau Farm. "It is very pure and pious." When burned, it is also said to repel mosquitoes and other insects, he adds.

Spreading knowledge

India is under pressure to cut its greenhouse gas emissions to meet the Paris climate goals set in 2015. The Gau brothers hope their efforts will help to achieve that. One way of doing so is helping other farmers to lower their emissions

Bhawani Singh (53) has come to the farm to learn more about how the cows' waste can be used. He is one of 10 farmers attending a workshop on "cow dung management."

Bhawani believes the suggestions won't take too much time or money and he wants to spread the knowledge further. "I will educate the farmers in my village to adopt this model," he told DW. "So as to have healthy cows and clean climate."

26.09.2017 | Text and pictures: Jasvinder Sehgal | dw.com/p/2kfjk



Worksheet 8

Interview: Gathering food from nature

As an introduction to the subject, read the [▶ article "Foragers find a taste of nature amid London coronavirus lockdown."](#)

Now talk to someone with a knowledge of wild plants, mushrooms or wild fruit. The questions listed below could help you with your **interview**. Ask your own questions as well and note the answers as bullet points.

1. What food do you pick in the wild? Which do you most enjoy picking?

.....
.....

2. What do you have to pay particular attention to (such as mistaking one plant for another, conservation or pest infestation)?

.....
.....

3. How do you use what you pick?

.....
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4. What do you have to pay attention to when preparing and storing the food?

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.....

5. Why do you pick food in the wild instead of buying it in a shop?

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6. How do you know so much about it?

.....
.....

7. Your own questions:

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Article 3

Foragers find a taste of nature amid London coronavirus lockdown

Escaping COVID-19 lockdown for their daily walk, urban foragers are connecting to nature via their taste buds. Understanding of what plants are edible is growing alongside an increasing appetite for wild food.



With bare hands, the best way to grab a stinging nettle is quickly, explains Izzy "Fizzy" Johnson

In a sun-lit hedgerow on the edge of a path in Tottenham, north London, the 24-year-old snatches the young leaves from the top few inches of the stem. Skillfully, she rolls one leaf like a cigarette, upside down, keeping the needle-like stinging hairs on the leaf's underside away from her skin, to produce a chubby slug of green tissue.

That, she says, popping it between her teeth, is how you eat a nettle raw – the best way to guarantee maximum nutrition from a plant rich in iron, vitamin A, and with more protein than spinach.

"I always think it tastes like those long beans, French beans," says Johnson who, in normal times, runs foraging walks under the name Benevolent Weeds, "but it's different for everyone."

Lockdown, which began in the UK on March 23 and is only now starting to ease, has opened the eyes of many city-dwellers to the usually overlooked fruits of spring blooming in their neighborhoods.

Since March foragers have been using their daily permitted outings – for food and exercise – to

gather nettles, elderflowers, dandelions, rare spring mushrooms, tart blackberry leaves, aniseed-like cow parsley and abundant wild garlic from hedgerows, riverbanks and marshland.

Before the COVID-19 crisis began, urban foraging was already surging in popularity, says Wross Lawrence, author of 'The Urban Forager: Find and Cook Wild Food in the City.'

Interest spiked as Londoners were suddenly presented with long, empty days, deserted streets, and hedgerows left bushy and unclipped as many maintenance workers were furloughed. But the biggest change during lockdown has been in mindset, Lawrence says.

"There's definitely more people that are out there doing it. I get a lot more messages through social media and friends asking me: 'What's this leaf; what's that leaf? Am I picking the right thing?'" Lawrence says. "I think lockdown has made people want to get in contact with nature."

Crisis mentality

Diverse newcomers – including restaurant chefs, Instagrammers, children and pensioners – have taken to the internet to learn from experienced foragers, who have livestreamed their outings on social media or, like Johnson, shared knowledge in conversations on Zoom.

Kim Walker, a foraging instructor and PhD student at Royal Botanic Gardens, Kew, said people confined to home have eclectic reasons for wanting to get out and collect wild foods.



A path with nettles, yarrow, elder tree and other wild plants in north London

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Article 3

“One is that we are all kind of feeling this fear about the future and the economic future – where will our food come from? So people are perhaps a bit interested in, if you had to be in a survival situation, what kinds of foods could you eat out in the wild? Could you survive on your own?”

Interest in foraging peaks in times of hardship, according to a 2017 study that looked at the 2008 recession and highlighted how foraging knowledge can support community resilience during social and economic crises.

But most foragers, Walker says, see it as a way to discover the subtly changing surroundings and seasons, practice mindfulness, engage with natural medicines, or explore the mythical and folkloric stories connected to native species.

“One of the philosophical questions about the emergence of this crisis is about how humans live and feel separate from nature,” Walker says, “and has it been partially caused from living in an unbalanced way with nature?”

Hope and flavor

Food supply chains have mostly held firm during the crisis. But given a break from hectic nine-to-five routines, Londoners have eagerly taken to growing vegetables, exchanging plants, baking sourdough and other activities that produce food from hands-on engagement rather than commercial markets. Many are drawn by their taste buds, like the Michelin-starred chefs who have jumped on the trend for urban foraging.



Climbing plants include sticky weed, a common plant with velcro-like leaves that can be used to make herbal tea

Rick Baker runs pop-up pizzeria Flat Earth Pizzas in Homerton, east London, which uses organic and foraged ingredients.

Before lockdown, Baker achieved success selling a pizza featuring chickweed and nettle tops cooked in brown butter but had to answer to customer suspicions about the dangers of foraged ingredients. When restaurants reopen, he’s hopeful for a more localized food system, where public desire to support small business and food workers can synchronize with excitement about local food.

“The industry that I work in is going through hell,” Baker says. “Hopefully it will be the new normal that people are more inquisitive. They’re more willing to try stuff. They’re more appreciative of what’s going on around them.”

He is hopeful that this period of reflection will ignite more questions about our food.

“It’s a step-by-step process, people aren’t going to suddenly go into foraging,” Baker says. “People are going to start to grow herbs on the windowsill or courgettes or whatever it may be. And then you start asking more questions about ‘where does this stuff come from?’”

Reclaiming lost knowledge

London is not alone in seeing a new appetite for wild food, says Lukasz Luczaj, head of the botany department at the University of Rzeszow, Poland. On his YouTube channel, Luczaj has seen an increase in foragers across Europe trading lessons.

He led foraging courses in London some 15 years ago, and found that, in contrast with Poland and its neighbors, the English had lost much of their traditional gathering culture.

“Collecting mushrooms in Britain wasn’t very popular,” said Luczaj. “Maybe after lockdown even more people will be interested.”

Michael Green, a civil engineer who lives on London’s border with the county of Essex, got a taste for mushroom collecting years ago, and streams his forages on Instagram.

i

Article 3



Forager and civil engineer Michael Green in a patch of nettles and wild plants in Waltham Forest, London

Working from home during lockdown, Green replaced a two-hour commute with a long forage through woodland and playing fields in northeast London. On Passover, Green was able to collect and

share horseradish leaves when shops ran short of bitter herbs served as part of the seder plate at the start of the Jewish holiday.

"I'm so lucky to have this place on my doorstep. It's like therapy coming here," he says. "It helps me to slow down in my day-to-day life. I'd be in a rush to go somewhere, to catch the bus to go to work, and now I'm always noticing weeds and plants popping up in the paving cracks, wildflowers shooting up in patches of wasteland. It makes the city more interesting."

10.06.2020

*Text and pictures: Matthew Ponsford
dw.com/p/3dVAn*

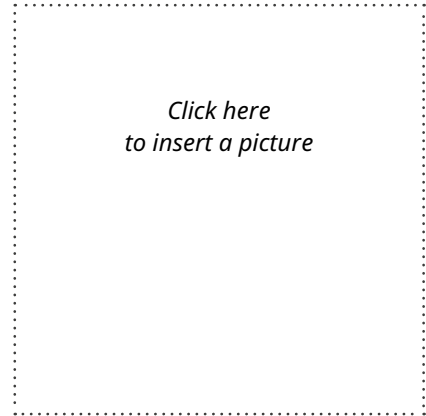


Worksheet 9

My climate-friendly meal

..... (Recipe)

Recipe by (Name)



Level of difficulty

- easy
- medium
- difficult

Best time of year for the dish

- spring
- summer
- autumn
- winter

Ingredients

- | | |
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Preparation

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Preparation time minutes

For portions

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