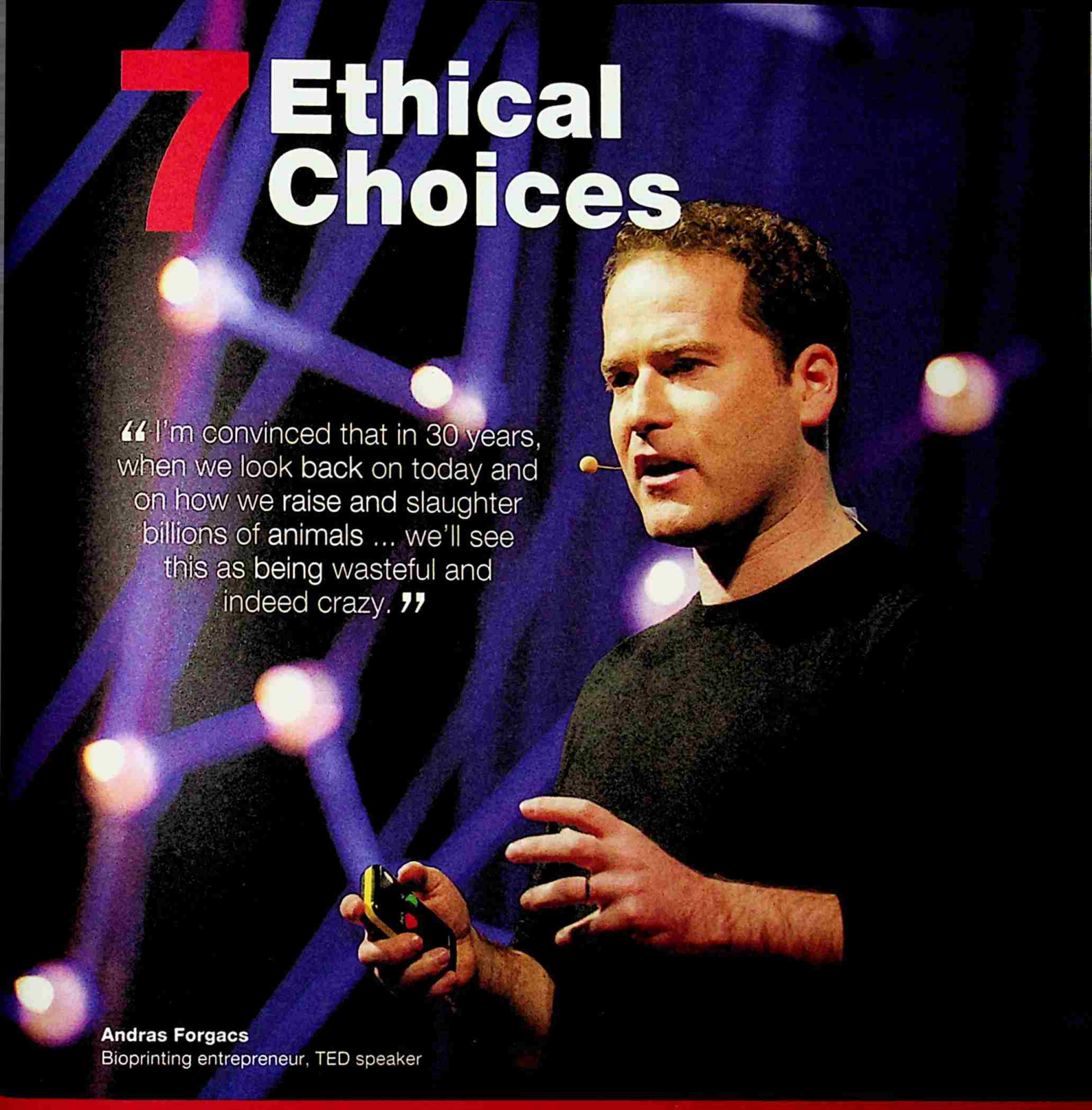
7 Ethical Choices



Andras Forgacs
Bioprinting entrepreneur, TED speaker

UNIT GOALS

In this unit, you will ...

- talk about ethical choices.
- read about a process called biofabrication.
- watch a TED Talk about a way to produce meat and leather more ethically.

WARM UP

▶ 7.1 Watch part of Andras Forgacs's TED Talk. Answer the questions with a partner.

1 What does Forgacs say we'll think in the future?

2 Why do you think he feels this way?

7A Food choices

An organic farm in British Columbia, Canada

VOCABULARY Ethical food choices

A 7.2 Complete each definition using the words in the box. Watch and check your answers.

fair trade	**free-range**	**organic**
locally produced	**genetically modified**	**sustainable**

1 _____ food is grown naturally, without using any special chemicals.

2 On _____ farms, animals are not kept in cages and can move around.

3 _____ food is grown using technology to change the food's size, color, taste, etc.

4 _____ food production aims to provide better trading and working conditions for farmers in developing countries.

5 By choosing _____ food, you minimize the distance the food needs to travel. This helps the environment.

6 _____ food production aims to preserve the world's natural resources for the future.

B Which of the things in **A** do you consider when you buy food? Discuss with a partner. Explain your answers.

To be honest, I only really think about the quality and price.

I always consider whether the food I buy is locally produced or not. I like to support local businesses.

LISTENING Sustainable chef

Identifying main ideas in fast speech
Many native speakers talk quickly but will often slow down to emphasize key points. Focusing on these slower parts of speech can help identify the speaker's main message.


Barton Seaver

A 7.3 Barton Seaver is a chef and environmentalist. Watch. What did he once work as in Africa? Circle the correct answer.

a a farmer **b** a fisherman **c** a trader

B 7.3 Watch again. Complete the sentences with the words you hear.

1 "_____ is how the vast majority of us interact with our resources."

2 "Environmentalism is so often thought of as this _____ idea."

3 "But _____ is full contact environmentalism."

C CRITICAL THINKING

Interpreting Work with a partner. Explain in your own words what Seaver means by each quote in **B** above.

SPEAKING Talking about ethical choices

A 7.4 Why did the woman switch to organic food?

A: I think that's all I need. How about you?
B: Let me just get some apples, and I'll be ready. done / finished
A: Why don't you get these? They look nice.
B: Oh, I only eat organic fruits and vegetables now.
A: Really? Why? Why's that / How come
B: I decided I didn't want to eat food that is grown using chemicals. I heard it's not very good for you.
A: That makes sense. I can see that / I can understand that
B: And it's better for the environment.
A: But does that mean you have to pay higher prices? pay more / spend more
B: Not necessarily. It depends where you shop.

B Practice the conversation with a partner. Practice again using the words on the right.

C Work with a partner. Which of these things do you buy more often? Why?

free-range or regular eggs	**locally produced or imported food**	**regular or organic fruit**

7B What the future holds

LANGUAGE FOCUS Discussing the future

A 7.5 Read the information. Which two countries saw the biggest increase in meat consumption between 1961 and 2011? What do you think was the reason? Discuss with a partner.

B 7.6 An expert is talking about the data above. Watch and complete the predictions.

1 In the future, the global demand for meat will (**probably**/**definitely**) increase.

2 By 2050, the world's population will increase by about (**15**/**35**) percent.

3 There will be a (**100**/**150**) percent increase in demand for meat from developing countries.

C 7.7 Watch and study the language in the chart.

Making predictions

In the future, more people will eat meat. It won't be easy to meet this demand. Will it have an effect on the environment?	Yes, it will./No, it won't.
The price of meat will definitely/probably be higher in the future. There definitely/probably won't be enough meat for everyone.	
When will the world's population reach 10 billion people?	It will reach 10 billion by around 2050/in about 30 years.

more information on **will for predictions**, see Grammar Summary 7 on page 157.

D 7.6 Circle the correct option to complete the sentences from the conversation. Listen again to check your answers.

1 Today, people around the world (**are eating/will eat**) more meat than ever before.

2 Do you think this trend (**is continuing/will continue**) in the future?

3 Every day, there (**are/will be**) 228,000 more people on the planet.

4 By 2050, many more people (**are able to/will be able to**) buy meat regularly.

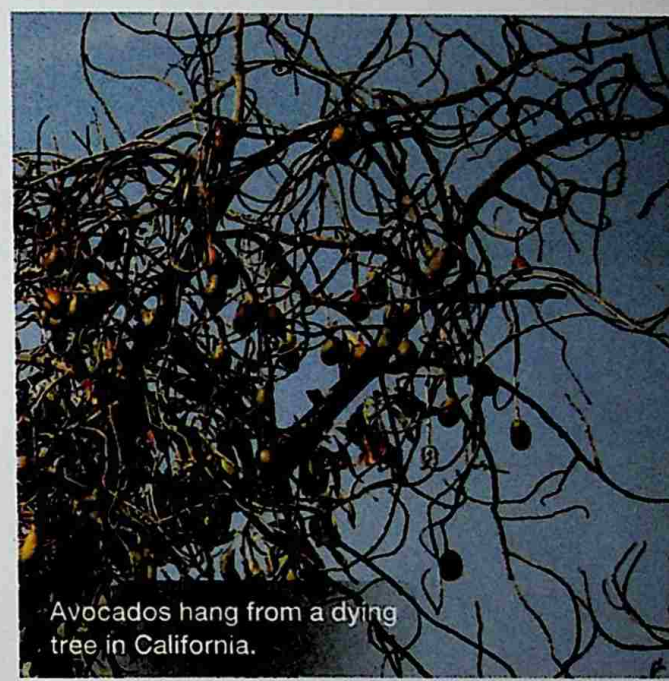
5 In the next 30 years, there (**is/will be**) a huge rise in the number of people demanding meat.

E 7.8 Read the information. Find and correct the three mistakes. Listen and check your answers.

According to a recent report, climate change has started to affect farmers around the world. Although some crops will definitely grow better in a warmer world, others won't probably do so well.

The report predicts that yields of crops like corn, wheat, and rice will start to decrease in 2030. They probably decline by up to 2 percent for each decade after that.

Other crops, such as fruit and nut trees, will also be affected. Almonds need a long period of cool weather each year. Without this, trees won't flower. Other crops that will be definitely under threat in the next few decades are grapes, cherries, and apples.



Avocados hang from a dying tree in California.

SPEAKING Predicting future habits

A Look at the questions below. Complete the table with your own predictions.

Do you think _____ in the future?	Yes or no?	Reason
people in your country will eat more meat		
meat will be more expensive in your country		
you will change your eating habits		
people around the world will have enough to eat		
most people in the world will be healthier		

B Work with a partner. Take turns asking the questions above. Give reasons for your answers. Were your predictions the same?

Do you think people in your country will eat more meat in the future?

No, I don't. People in this country already eat a lot of meat.

Over a billion animals a year are killed to make leather products like these.

7C Leather from a lab

PRE-READING Previewing

A How many leather products do you own? Discuss with a partner.

B Read the first paragraph of the passage. What is the problem with leather?

7.9

Leather is a hugely popular material for a **range** of products: shoes, jackets, bags, wallets—the list goes on. But this popularity comes at a price. The global leather industry kills over a billion animals every year. This has caused many to ask the question: Is it possible to meet the global demand of leather but not do any harm to animals? A process called biofabrication may be the answer.

Biofabrication is not new; it is already commonly used in medicine. Biofabrication techniques are used to grow body parts like ears, skin, and bones for transplants.[1] But it can also be used to make other products, such as leather. Biofabricated leather has many advantages. Scientists will be able to make it with whatever qualities they want, such as extra softness, greater strength, or even different colors and patterns.

But how exactly does biofabrication work? To grow leather, scientists begin by taking some **cells** from an animal, not hurting the animal in any way. They then isolate the cells and grow them in a **lab**. This process takes millions of cells and expands them into billions. Next, the scientists take the cells and spread them out to form thin sheets. These thin sheets are then **layered** to combine into thicker sheets. After that, the scientists can tan the hide.[2] Anyone can then dye[3] and finish the leather and design it in any way they like—into bags, watches, or shoes.

Andras Forgacs supports biofabrication. He says it may even be a "natural evolution[4] of manufacturing for mankind." We will be able to make the products we need in a more **efficient**, responsible, and creative way. And biofabrication is not just about leather—it's possible the technique could also be used to grow meat. While this may sound crazy, Forgacs certainly doesn't think so. "What's crazy," he says, "is what we do today."

[1] **transplant:** *n.* an operation in which a body part is replaced
[2] **tan the hide:** *phrase* to turn animal skin into leather
[3] **dye:** *v.* to change the color of something using special liquid
[4] **evolution:** *n.* a process of gradual, natural change over time

UNDERSTANDING DETAILS

Read the passage. Circle **T** for true, **F** for false, or **NG** for not given.

1	Many animals are killed to make leather.	**T**	**F**	**NG**
2	Demand for leather is increasing.	**T**	**F**	**NG**
3	Biofabrication is already used in medicine.	**T**	**F**	**NG**
4	Animals feel pain when scientists take their cells.	**T**	**F**	**NG**
5	Andras Forgacs is in favor of biofabrication.	**T**	**F**	**NG**
6	Biofabrication could be used to grow meat.	**T**	**F**	**NG**

UNDERSTANDING A PROCESS

Look at the diagram. Number the sentences 1–8.

_____ Scientists grow the cells in a lab.

_____ Scientists can tan the hide.

_____ Thicker sheets are formed.

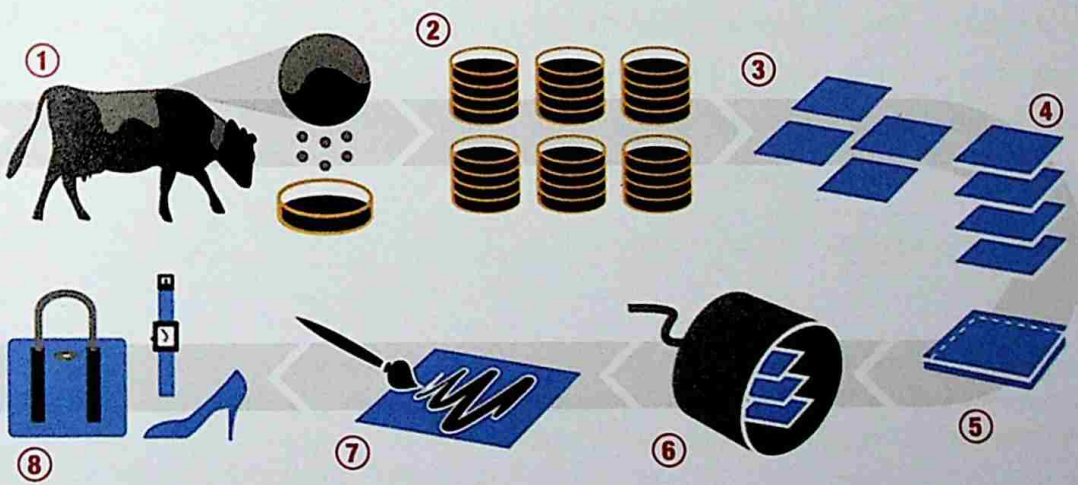
_____ Scientists spread the cells and form thin sheets.

_____ Scientists take cells from an animal.

_____ The thin sheets are layered.

_____ The leather can by dyed and finished.

_____ The leather is made into different products.



BUILDING VOCABULARY

A Match each word in **blue** from the passage to its definition.

1	**range**	o	a room where scientific experiments take place
2	**cell**	o	able to do something well without wasting time or energy
3	**lab**	o	an extremely small part of an animal or plant
4	**layer**	o	a number of different things
5	**efficient**	o	to arrange one on top of another

B **CRITICAL THINKING**

Personalizing Would you wear biofabricated leather? Would you eat biofabricated meat? Discuss with a partner.

7D Leather and meat without killing animals

TEDTALKS

When **ANDRAS FORGACS** started a company to 3D-print human **tissues** and **organs**, people thought he was crazy. But after some success, he realized he could also grow products like meat and leather to avoid the **slaughter** of animals. Forgacs's idea worth spreading is that we can be more efficient and **humane** by getting meat and leather from tissues grown in a lab.

PREVIEWING

A Read the paragraph above. Circle the correction option for each sentence below. You will hear these words in the TED Talk.

1 **Tissues** are materials that (**living things**/**machines**) are made from.

2 An example of a human **organ** is your (**brain**/**foot**).

3 When you **slaughter** an animal, you (**kill**/**save**) it.

4 A **humane** person is (**kind and gentle**/**mean and angry**).

B Look at the photo on page 85. What does Forgacs's presentation slide show?

VIEWING

A ▶ 7.10 Watch Part 1 of the TED Talk. Check [✓] the reasons why Forgacs is concerned about having a herd of 100 billion farm animals on the planet.

- ☐ The animals will use large amounts of land and water.
- ☐ The animals will produce even more greenhouse gases.
- ☐ It will cause many wild animals to become extinct.
- ☐ Diseases will spread more easily.

B ▶ 7.11 Watch Part 2 of the TED Talk. Why does Forgacs think producing leather is a good place for biofabrication to begin? Check [✓] each reason he mentions.

- ☐ It's widely used.
- ☐ It's cheap.
- ☐ It's simple to grow.
- ☐ It's beautiful.
- ☐ It's part of our history.
- ☐ It's strong.

C 7.12 Watch Part 3 of the TED Talk. Complete Forgacs's description of biofabricated leather. Match the two parts of each sentence.

Benefits of biofabricated leather

1	It is just like regular leather because it is made from	o	o a cow or alligator.
2	It doesn't have	o	o its properties.
3	It can be grown in the shape of	o	o the same cells.
4	It is not limited to the shape of	o	o a wallet or handbag.
5	We can control	o	o hair, scars, or insect bites.

D CRITICAL THINKING

Applying Which of these groups do you think would support biofabrication? Why? Discuss with a partner.

vegetarians farmers animal ranchers fashion designers

VOCABULARY IN CONTEXT

7.13 Watch the excerpts from the TED Talk. Choose the correct meaning of the words.

PRESENTATION SKILLS Creating effective slides

It pays to take the time to make your presentation slides as effective as possible. The following tips can help you.

Keep the background plain. *Use strong, contrasting colors.*
Do not use too much text. *Keep any graphics or images simple.*

A 7.14 Watch part of Andras Forgacs's TED Talk. Notice how effective his slide is.

B 7.15 Now watch Forgacs show another slide. Do you think it's effective? Why or why not? Use the tips in the box above to help you decide.

7E Looking ahead

COMMUNICATE Weighing both sides

A Work in a group. The year is 2050. A company wants to open a biofabrication factory in your city. The factory will produce biofabricated meat and leather. Brainstorm some arguments for and against opening the factory. Write notes in the box below. Consider the following:

the effect on jobs	the effect on animals	people's health
the quality of food	the environment	the price of food

Arguments for the biofabrication lab	Arguments against the biofabrication lab

B Split into two groups. **Group A** is in favor of the biofabrication factory. **Group B** is against it. You are going to give a presentation to argue your position. Choose three or four of the strongest arguments. Prepare some slides to help get your points across.

C Present your arguments and your slides to another group. Take notes as you listen.

Acknowledging a point
That's a good point, but … *I see what you mean, but …* *I can see your point, but …*

WRITING The future of food

Are you more optimistic or pessimistic about the future of food? Support your idea with at least three predictions of what you think the future will be like.

I am optimistic about the future of food. I think scientists will continue to find new, creative ways to feed our population. They will also find ways to make food more nutritious.