Coffee is one of the planet’s most consumed beverages. Around two billion cups are enjoyed everyday, all over the world.

The long value chain from the farmer through to a flat white provides many livelihoods – around 120 million people rely on this plant – and the majority of them are small-scale farmers. Nevertheless, the state of the world’s coffee plantations is somewhat precarious. Climate change and economic fluctuations provide shaky ground for the coffee industry. While monocultural practices provide the large quantities consumers demand, they can lead to deforestation, upset fragile ecosystems and reduce biodiversity. Given that these large plantations are also highly susceptible to pests and disease, it is high time we looked at the future of coffee production.

According to Kew scientists, there are over 124 identified species of coffee trees. Of these, only two are cultivated and traded in the mainstream market: Arabica and Robusta, the rest consisting of wild relatives. Although greatly cherished because of their commercial value, these species are incredibly sensitive to diseases and pests. Coffee rust, for example, wiped out most of the world’s Arabica plants in 1890.
Even back then, the world’s coffee industry realised that lesser known and grown coffee plants were needed to sustain this blossoming industry. This imperative hasn’t changed: today, more than ever, varieties including wild coffee species are crucial to keep supply going and to protect communities and the habitats in which they thrive. And yet, 60 percent of these resources are threatened with extinction.

Because if there is demand, farmers will be empowered to grow more diverse coffee in a sustainable way.

Educating consumers about the fragility of the coffee ecosystem is an important part of a much-needed change in the coffee industry. Change can start with the menu description in any restaurant or café. Coffee houses are starting to explain sourcing in their roast options. ‘Wild grown’, for example, has a growing resonance, along with the more established quality marks such as ‘Fairtrade’ or ‘Rainforest Alliance’. Giving people the choice to promote better foods starts with chefs giving this information to consumers and providing them with options of a sustainable purchase.

“If everybody is ok with the fact that we are going to be paying USD10 - 15 a cup for crappy coffee in 30 years, that’s fine. But if you want your consumers to continue to enjoy the incredible flavor profiles of this plant, then you have to invest in this conservation effort. There is no question about it.”

- Tim Schilling, World Coffee Research

After a little stirring, it is alarmingly clear that the coffee farming industry is a lot more fragile than the everyday cup coffee is served in.

The Crop Trust is an international organisation based in Bonn, Germany with the unique global mission to ensure the conservation of crop diversity in genebanks, forever. The Crop Trust, the United Nations Food and Agriculture Organization (FAO) and other partners started the Food Forever Initiative in 2017 to raise awareness on the importance of safeguarding agrobiodiversity to build resilient food systems.
Region
Bogota, Colombia

Favourite way to enjoy coffee diversity
Coffee is an amazing ingredient in a BBQ marinade. Rich and smoky, it can boost the flavour of meats and add an incredible depth.

Social
@kaplanchef

My story with coffee
I discovered my love of cooking in the heart of an Israeli Kibbutz, where the simple and beautiful task of washing and preparing salad leaves piqued my curiosity for the culinary world. Today, I live in Bogota with my family, and run three restaurants in the city. Every day, in many different ways, I strive to bring sustainability into the heart of my restaurants. The coffee from Colombia is up there with the best in the world. Only in recent years have our best coffee beans reached Colombians themselves, because we used to export most of the produce. As a result, to get our local culture to appreciate and respect the bean, and where it has come from is a relatively new concept. There are also many social issues around the production of coffee in Colombia that have effects on local farmers, and this is one of the areas we like to focus our sourcing credentials on at the restaurant. We look for coffee businesses who produce a delicious brew and at the same time pay their staff and farmers fairly. Working with companies who pay the right wages allows farmers to send their children to school and invest back into the farms. This is really important to me.

Paying the right amount and making sure the traceability leads back to the farmer is just one of the sustainability issues. Another is water, as the production of coffee is water thirsty. New approaches exist that need less water, and we are very interested in supporting companies that have a considered watch on water waste. Deforestation in Colombia due to agriculture is another important topic. From cattle farming to coffee plantations, our sourcing is done with consideration for the jewel of our heritage – the Amazon. Increasingly, we look for ingredients that are produced with commitment to a better form of agriculture. Looking around the world, seeing the state of our food systems, I think it’s not just the right, but the only way to go!

After a tough year with Covid-19, we’re learning even more that if there is one thing we need to act on as chefs, it is protecting our environment. Many organisations are doing wonderful things – the Colombian Coffee Federation, for example –, moving forward amidst many challenges. Chefs are the link between a diner and producer. We are responsible for supporting these organisations and opening up the discussion as much as we can, bringing awareness to each and every ingredient we use. And bringing in some action, too! My company is currently planting a tree for every online delivery order we get (the ‘One Delivery One Tree’ programme). It is an extraordinary pledge, one which has seen over one hundred thousand trees planted. A small token of what we can do to assist in the healing of the land. Because, when you look at the whole picture, our businesses have the land to thank.

CALL FOR ACTION!

Getting deeper into sustainability and biodiversity conversations is a process. You have to be patient, it is really hard to be 100 percent sustainable. Do whatever and as much as you can. Focus on one or two starting points, too many shifts at once can be overwhelming. We are a big community of chefs, and in this together. If everyone does something, we will go further, faster.
My story with coffee

As a chef, one of the very first things you learn is that the quality of your ingredients is imperative to your finished dish. You cannot work with bad ingredients to create something delightful; it just doesn’t work that way! And when looking for the best ingredients, you are inevitably drawn to your local, seasonal produce and heritage. The ingredients that might be forgotten, the history of your food culture you can share with the world on a plate – these are the exciting moments for chefs that create culinary journeys and experiences.

In the beginning it might start off as somewhat of an egotistical journey: by sourcing the best ingredients you stand a chance to be the best chef. Accolades and awards, those are encouraging, but after time and effort, it is very clear that as chefs we have a responsibility as a part of the food system. Sourcing responsibly and carefully is a must. I love using wild herbs in my restaurants for this reason. These particular herbs only grow after a hot, dry spell, and then a showering of rain, and the result is plants sprouting up with wonderfully intense, aromatic flavours. The reason we have stopped using them is because we have lost the cultural know-how of how to use them, and because industrial agriculture has taken the place of many wild ingredients with more homogeneous variants. Everywhere in the world, this sort of biodiversity is important to maintain. Once you start losing these ingredients you lose the diverse flavour palettes we are so lucky to have, and upset the equilibrium of nature.

Sourcing ingredients has been a fascinating journey for me, because it is clear that their availability and quality has changed dramatically over the past decades. It begs the question: How did this happen? Why has our produce changed so dramatically? The answers are complex. Our agricultural systems are elaborate and complicated, but as chefs we are part of them, have a role to play, and an opportunity to stimulate positive change. How can any small action make a big impact? That is the point, I guess, of change and movements. We all have to play our part to get things moving in a better direction.

Coffee in Turkey has a long and rich history, it is weaved into our folklore. For example, if you are looking to be accepted by a future husband or wife, you visit their respective families. The coffee they serve is the answer to your future relationship with them – bitter coffee represents bitter feelings towards you, and sweet coffee – well, you can work it out! It is much more than just a cup of coffee for us, it is our heritage. Turkish coffee is often brewed in a pot called a cezve, and brewed twice to create thicker, textured coffee with more bitter notes. The strong foothold in our culture made Turkish coffee worthy of being inscribed into UNESCO’s Intangible Cultural Heritage List. Even our translation of the word ‘breakfast’ means ‘food taken before coffee’! We do not grow our coffee locally, it is imported. This poses many challenges of sourcing for importers and roasters – looking at farming methods and fair wages are important factors. As chefs, we can find people who source the right ingredients for us with our criteria in mind. The younger generation is definitely keen on the old style of Turkish coffee and it is inspiring to see that they are concerned about sustainability issues.

As a chef I enjoy working with quality ingredients sourced with care and respect, and producing them as part of a fine dining experience. I enjoy showing people that foraged, wild herbs are the luxury ingredients we should be paying luxury prices for. The new luxury in food is responsible and considered produce.

CALL FOR ACTION!

I encourage chefs to follow their noses to where the best ingredients lie in their geography. Talk to producers, farmers, market holders, and find out what food they grow and why. Engaging in dialogue is an important and primary step.
My work has focused on studying the genetic diversity of wild coffee species, especially in Madagascar, and looking at conservation practices. Coffee cannot be conserved long-term as seeds, like those in the Svalbard Global Seed Vault. Instead they are preserved as living plants in field collections known as ‘field genebanks’. Unfortunately, maintaining coffee genetic resources in these fields is costly and makes them vulnerable to numerous threats that result in loss of plants. I was involved in a collaborative project with the Crop Trust and World Coffee Research to develop a Global Conservation Strategy for Coffee Genetic Resources. The purpose of the strategy is to ensure the conservation and use of coffee genetic resources for a positive, sustainable future of the crop and for those dependent on coffee for their livelihoods.

Considering the complexity of the coffee supply chain, a sustainable cup of coffee cannot be defined by a single factor. From producer to consumer, sustainable practices can be applied to every segment of the supply chain. Coffee has many certification systems, but the real question is whether farmers are getting the promised premium for their coffee or whether the cost of certification negates that. At the exporter/roaster level, things to consider are the price paid to the farmer (including whether the roaster trades directly with the farmer or farmer co-ops), the means of transporting the beans and so forth. At the consumer level, wastage is a key consideration. Trying to reduce waste can help determine your brewing device or coffee packaging.

In the biological sense, diversity in coffee can be seen in two ways. The diversity of the cultivated coffees and the broader diversity of the coffee genus (*Coffea*). The two cultivated coffee species are Arabica coffee (*Coffea arabica*) and Robusta coffee (*Coffea canephora*). Over half of the global coffee production is of Arabica coffee. Arabica is lacking in genetic diversity within the species, making it vulnerable to threats like diseases, pests and climate adaptation. The greater the genetic diversity within a species, the greater the chances are for its long-term survival. When you look at the genus *Coffea*, there are 124 species distributed in Africa, Madagascar, Mauritius, Comoros, Reunion Islands, Australia and South and Southeast Asia. These *Coffea* species inhabit varied environments, which has resulted in adaptations to different environmental conditions. These non-cultivated species are known as ‘crop wild relatives’. These wild relatives can have genes with specific adaptations for disease resistance or drought tolerance, which will be critical for breeding climate resilient, cultivated coffee.

### Action needs to happen on two fronts

1. We need to ensure that smallholder farmers are paid a fair price for their produce that allows them to earn a decent living wage. If farmers can’t afford to support themselves by producing the coffee crop, they will abandon coffee for other, more remunerative crops, which is already happening in many locations. This will eventually lead to a shortage of coffee.

2. From the standpoint of the plant itself, coffee production is already and will be further impacted by climate change. In order to sustain the future of the crop, investments need to be made in protecting coffee genetic resources and in advancing coffee research so that we can develop new varieties utilising the available genetic resources that are more resilient to a changing climate.

On a personal note, as a grower with coffee farms in Jamaica, I have first-hand experience with
the impact of climate change. The past few summers, the droughts have been severe, impacting not only the yield, but also the quality of the coffee. Every year during hurricane season, I worry when the next big storm is going to strike. A bad weather event can be devastating for a smallholder farmer. Sharing personal stories of farmers with consumers can humanise the commodity of coffee, bringing awareness of the blood, sweat and tears that have gone into every cup.

Coffee is similar to wine in exhibiting terroir. The same variety cultivated in different locations can taste very different. My message to chefs is to experiment with coffees from different regions of the world and even from different farms within a specific region. There is tremendous opportunity for a chef to experiment with flavors that they can incorporate into their creations!

Today, the collection at the Tropical Agricultural Research and Higher Education Center (CATIE) consists of almost 2'000 types of domesticated and wild coffee, maintained in close rows of trees on ten hectares of land. They have been collected over decades from Ethiopia, Yemen, Kenya, Tanzania, Colombia, Brazil, Mexico and all over Central America. Eleven species are represented, but 90 percent of the plants belong to Coffea arabica, which accounts for the majority of the world’s cups of coffee, and also for the most highly valued ones. Although not every plant in the collection would make a delicious brew, the diversity it holds is the foundation for breeding more resilient coffee for Central America and beyond.

Our programme aims to help small-scale farmers. When we start crossing varieties of coffee with promising characteristics, we bear in mind that the aim of creating future varieties should be adaptiveness to new weather patterns. Global climate change is altering the traditional habitats for coffee all around the world – both wild and in plantations. Taking this into account, the hybrids we work on should have resilient characteristics while maintaining or, hopefully, increasing yields. Having these new varieties available will support the small-scale coffee farmers who so desperately need them.

A message for chefs is to keep searching for new flavours and characteristics. As long as new varieties are met with interest, farmers will be motivated to grow more! In doing so, the chef community will be communicating the need for a better coffee industry, directly driving and encouraging new varieties and flavours.

CATIE has the only coffee collection globally accessible to coffee breeders via the Plant Treaty; the other 18 coffee genebanks do not have use and sharing agreements.

If 25 million people paid USD 1 to secure permanent, sustainable funding for the world’s coffee genebank collections, coffee would be safe forever.

Sources:
- Crop Trust
- World Coffee Research
- SDG2 Advocacy Hub
- Food Forever

Tools to find out more
- Chefs’ Manifesto Instagram: @chefsmanifesto
- Chefs’ Manifesto Website: www.chefsmanifesto.com
- SDG2 Advocacy Hub Website: www.sdg2advocacyhub.org
- Food Forever Website: www.food4ever.org

For sources and more data, visit: www.chefsmanifesto.com/casestudies
Produced in collaboration with the Crop Trust and Food Forever