

WITH: NEW ENGLAND DESTINATIONS

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Food science takes flight

Chefs and wine experts adjust menus and recipes to fit tastes — and taste buds — at 30,000 feet

BY KARI BODNARCHUK | GLOBE CORRESPONDENT

The front section of an old Airbus — complete with the galley and eight rows of seating — rests in a building just south of Munich, Germany. A metal tube about the length of a soccer field surrounds the aircraft, creating a pressure chamber that mimics the conditions found at cruising altitude: aircraft noise, turbulence, reduced humidity, and lower air pressure.

Here, in this flight laboratory at the renowned Fraunhofer Institute, researchers, chefs, winemakers, and test subjects — including 24 randomly selected students — gathered over the course of two years to sample meals for Lufthansa Airlines.

“We took students from the street and didn’t tell them what we were doing,” says Ernst Derenthal, product design and catering manager for Lufthansa. “All we did was ask them about the flavors, and why they did or didn’t like them. We started with sauces and only changed the salt content, and then went on to full meals and desserts.

“We learned that you taste and smell everything like you would if you had a bit of a cold, that the desserts never taste as sweet and the coffee tastes more bitter,” says Derenthal, a trained chef with 20 years of cooking experience. “We learned that to reach the same flavor profile at altitude, you would have to add 30 percent more salt. The same thing with desserts — you would need up to 30

FOOD, Page M2



PHOTOS BY FRAUNHOFER IBP (TOP); DEUTSCHE LUFTHANSA AG; ALEX KILLIAN

An old Airbus (top) has been turned into a laboratory in Germany where chefs and wine experts can test ideas for meals on Lufthansa Airlines. A lab in Seattle tests wines for Alaska Airlines.

Food and wine takes flight

►FOOD

Continued from Page M1

percent more sugar to get the same sweetness.”

This study backed up other research conducted at Fraunhofer that found one-third of passengers’ taste buds go numb at altitude, and that the lack of humidity dries out people’s noses. Food simply tastes different at 30,000 feet than it does on the ground.

Airlines realize that good food and wine can significantly enhance travelers’ experiences, and have invested more into creating tasty meal and drink options. Many, from Lufthansa to Delta and Alaska, have celebrity and award-winning chefs working behind the scenes to boost the flavors in airline food in a healthy way. After all, as any chef will tell you, you can’t just throw more salt or sugar in a dish and call it good.

“There’s a way to bring out the punch without using salt,” says Seattle restaurant-owner Tom Douglas, a chef consultant who designs the menus for Alaska Airlines. “We use pungent flavors like lemongrass, garlic, ginger, and cayenne pepper — the ones that can add a little kick — to brighten flavor. One of the dishes we have flying now is coconut curry chicken. We use coconut milk as the base and then double up on all the curry spices so when it’s reduced down it tastes normal to you.”

Maneet Chauhan, a judge on Food Network’s “Chopped” and owner of two Nashville restaurants, works with American Airlines to develop its in-flight menus. “I rely on spices and ingredients that have bolder flavors so they shine through better, but it depends on the final dish,” says Chauhan, who grew up in northern India. “If I’m trying to recreate a barbecue flavor, I use black cardamom or roasted cumin,



HAWAIIAN AIRLINES

which gives it a smoky flavor. If I’m recreating a sweeter profile, I may use fennel or star anise.”

Chefs often use umami and other savory flavors that aren’t affected by flying conditions, or add sauces and ingredients with more acidity, including vinaigrettes.

“You have to take cultural considerations into account, too,” says Lee Anne Wong, who creates meals for all Hawaiian Airways flights between Hawaii and Japan. “The Japanese, in general, don’t like goat cheese, for example — it’s a little strong for the palate. I also think about portion size and timing. Almost all flights out of Japan leave after 9 p.m., so I don’t want lots of butter and dairy or mashed potatoes at that time of night. I’m currently doing a Hawaiian smoked pork over green onion rice with steamed vegetables. It’s a simple dish. The meat is smoky with an Asian-style barbecue sauce that makes it bright and flavorful.”

Some of the biggest challenges for chefs, however, involve logistics: “Flight attendants need to be able to assemble a meal in under six touches,”

Lee Anne Wong creates meals for all Hawaiian Airways flights between Hawaii and Japan.

explains Wong. “They aren’t professional chefs, so it has to be simple. Think about first class, where they have to serve a multicourse meal to 18 people. Part of what I do when I visit the catering kitchens is photograph a packaged meal and the finished plate, and all the steps in between on how to get it from start to finish.”

Meals for one airline may get prepared in 50 different kitchens across the country so chefs tend to rely on seasonal products more than local ones, to maintain consistency in the quality of food and be able to hit the quantities needed.

“Delays are one of the biggest problems, when the flight is 45 minutes behind or you’re waiting for de-icing,” says Douglas. “Your food can sit there and dehydrate in a warm oven. We try to make meals foolproof on the ground so that’s not an issue. That may mean

serving a chicken breast with a sauce so that it still tastes good.”

Braising meat or seafood comes in handy to prevent it from drying out during the reheating process. Chefs often put a blanched cabbage leaf over the top of a dish to trap in moisture during reheating.

Wine experts face some of the same challenges as chefs, since passengers’ dulled sense of taste and smell impacts their interaction with wine.

“Your perception of acidity and tannins is increased, and the fruitiness decreases,” says Véronique Rivest, who earned second place at the Best Sommelier of the World competition and selects wine for Air Canada. “I’m looking for wines that are perfectly balanced, so nothing is sticking out — there isn’t too much oak, fruitiness, alcohol, or acidity.

“I also take into account all of the variables, be it airplane noise, the weather, the people you’re with, the person sitting next to you, even your mood,” says Rivest. “Are you super tired after working a week abroad, or relaxed and coming back from vacation? These can all affect how you en-

joy your wine, or not.”

Hal Landvoigt started smuggling 3-ounce bottles of wine onto planes a few years ago, conducting secret experiments to determine if the wine tasted differently in the air, and if so, in what way.

“If you ever see that kooky guy at the airport drinking out of a sippy bottle, it’s probably me,” says Landvoigt, director of winemaking at Seattle’s Precept Wine. “I want to taste the wine right before I get on a plane, and then again as soon as I’m on the (pressurized) plane. I’m curious how they taste different.”

Landvoigt now custom-blends wine for Alaska Airlines, working in a lab in a Seattle office building where he’s surrounded by bottles, vials, and beakers full of wine.

“Since you have a reduced aromatic expression, meaning you can’t smell as well, wine tastes thin, uninteresting, and more acidic than it is,” he says. “We increase the amount of oak to bring out the vanilla and caramel aromas, and increase the sweetness to enhance the fruit, so we can create a more enjoyable wine.”

Landvoigt experiments in his lab, but if he comes up with a successful new blend, it will get produced at volume, bottled, and labeled at Precept’s winery in eastern Washington. He has also conducted three tastings at altitude using actual passengers on Alaska flights, asking people to sample wines, choose their favorites, and write down their impressions of each one.

“I’ve never gotten such detailed feedback than from a group of people trapped on a plane drinking,” says Landvoigt. “People wrote hundreds and hundreds of words, and gave us amazingly helpful feedback. . . . About 85 percent of the people picked the altitude wine.”

Through his experiments in his lab, at the airport, and at altitude, Landvoigt has created a red blend and a pinot gris for Canoe Ridge’s Exploration, which can only be found onboard Alaska.

Perhaps Landvoigt’s biggest barometer for judging a wine’s success, however: “I ask myself, ‘If I weren’t trapped on a plane, would I still be happy drinking this?’ ”

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