

Are plants intelligent? If so, what does that mean for your salad?

New book looks at how plants sense the world and the agency they have in their own lives.

By ELIZABETH A. HARRIS
The New York Times

Zoë Schlanger was a reporter covering climate change — a daily onslaught of floods, fires and other natural disasters — when she started wading into botany journals to relax.

There, she found something that surprised her: Researchers were debating whether plants might have an intelligence of their own.

Take corn. It is one of several types of plants that can identify a caterpillar's species by its saliva and send out plumes of chemical compounds into the air, summoning the insect's predator. Alerted to the caterpillar's presence by these compounds, a parasitic wasp arrives and destroys it, protecting the corn.

"One of the big debates is whether or not there's any form of intention with plants and whether you need intention for something to have intelligence," Schlanger said. "But one could argue that it doesn't even matter if you can find intention in plants."

What matters is watching what plants actually do. And what they do is make decisions in real time and plan for the future.

Schlanger spent the next several years exploring plant behavior for her book, *The Light Eaters*, which was published this month. On a recent walk through Central Park in New York — past hydrangeas, helioleaves, and hyscians and a Broadway softball league game between "Hamilton" and team "The Lion King" — Schlanger described some of the astonishing things plants can do, and how learning more about them has informed her work reporting on climate change, which she now does for The Atlantic.

This interview has been edited and condensed for length and clarity.

What are some surprising things plants can do?

I am most drawn to the ways that plants manipulate animals to their benefit.

Yellow monkey flowers are able to lie to bees about how much pollen is in their flowers to get them into showing up. Bees have this screening process where they're sampling the volatile chemicals coming off the flowers, and those chemicals will indicate how much pollen there for them. The monkey flowers have come up with a way to not have to go through the very expensive, energetic work of making all this pollen, but just emitting the volatile chemicals. The bee shows up and there is



nothing there for it, but the flower gets pollinated anyway.

Or there's the whole world of sexually deceptive orchids, which I think is so cool. There are some that grow one really unusual petal: this long strand with a little bulb at the end of it. Male wasps will arrive and cling to it because it's exuding almost the exact same pheromone as a female wasp.

I like it when they summon a predator. That's just crazy.

Back in the '90s, researchers realized that corn and tomatoes were able to sample the saliva of the caterpillar eating them, and then synthesize chemicals that summon the exact parasitic wasp that would come and inject the caterpillars with their larvae. So the wasp comes, puts loads of larvae inside of the caterpillars. The larvae hatch and eat the caterpillars from the inside out and then glue their cocoons to the outside of the caterpillar. So then you just have these husks of caterpillars covered in wasp cocoons.

When scientists talk about "intelligence" in plants, what do they mean?

There are all of these calculations plants are constantly making by taking in every aspect of their environment and adjusting their lives accordingly, and it starts to look an awful lot like what we might consider intelligence — in a totally alien life form. That's kind of how you have to treat it. Intelligence won't show up in the way we expect ourselves to be intelligent. It'll show up in ways



Above ▶ Zoë Schlanger spent years exploring plant behavior and the question of plant intelligence for her book, *The Light Eaters*.
At top ▶ Schlanger is shown at the National Tropical Botanical Garden.

that are evolutionarily appropriate for plants.

So no one is saying the plant is going to write a poem or do your math homework?

Not yet! Although researchers who study plant communication talk about syntax in plant communication and, in a way, sentence structure. But they're talking about chemistry, chemical compounds floating in the air that have meaning.

What about the way plants sense the world? Do they interact with sound?

There's some research happening

now where scientists are playing tones for plants and realizing certain tones make plants produce more of certain compounds. There's a tone that, if played for enough time, will make broccoli ramp up its antioxidants. In alfalfa sprouts, other tones will cause the plant to produce more vitamin C. One could see how — if they figured this out better — you could adjust the nutrition content of crops just by playing tones.

There's also a whole world of playing tones to plants that causes them to produce more of their own pesticide, which is interesting when you

think about how much pesticide we use to grow our food crops.

Have you changed your own behavior after spending so much time thinking about this? Do you have trouble eating salad now?

Obviously we're animals that need to eat plants. There's no way around that. But there is a way of imagining a future with agricultural practices and harvesting practices that are more tuned in to the lifestyle of the plant, the things it's capable of and its priorities.

This opens up the world of plant ethics. What does our world look like if we include plants in a moral imagination? There are lots of cultures that are already based on this. Rob in Wall Kimmerer (author of *Braiding Sweetgrass*) writes a lot about this, how Indigenous science leaves a lot more room for questions about respect and mutual interest.

What do you want people to take away from this book?

In thinking about plant intelligence, what we're really thinking about is how much plants are active participants in their own life. They have some sense of agency, even if it doesn't look anything like our own agency. I think that is really humbling.

Everything wants to keep living. That has really helped me come back to climate reporting with more of a sense of what we stand to lose from climate change. Every single species is this ingenious biological feat that would be so foolish to extinguish.

'Game changer' section at Cannes zooms in on the visionary

Esteemed film fest's Un Certain Regard selections favor young filmmakers and signal the emergence of future generations.

By A.J. GOLDMANN
The New York Times

British filmmaker Molly Manning Walker was on vacation in Rome on May 26, 2023, when her phone rang. A week earlier, her feature debut *"How to Have Sex"* had premiered at the Cannes Film Festival. Now, festival organizers were calling because her movie, about a group of 16-year-old girls who spend a debauched booze and sex-soaked summer vacation on the Greek island of Crete, had won the festival's closing ceremony back on the Côte d'Azur.

"I had to drive to the nearest airport really quickly and get on the next plane, and I ran in three minutes after the film had been announced," Manning Walker, 30, recalled in a recent phone interview.

She wasn't exaggerating. She did, in fact, bolt into the cinema wearing a lime-green T-shirt and black tennis shoes. "What the hell is going on?" she asked the audience in disbelief. The answer was that *"How to Have Sex"* had won the top award in Un Certain Regard, the sidebar section at the festival that is known for recognizing films by new and emerging directors. While the slurry main competition at Cannes — which began Tuesday and this year features new works by David Cronenberg, Francis Ford Coppola, Yorgos Lanthimos and other established filmmakers — attracts most of the media's attention, Un Certain Regard, which translates to "a certain look," is where one can most reliably glimpse where world cinema is headed. In the words of Thierry Frémaux,

Cannes' artistic director, "UCR discovers and celebrates the new generation and expands the frontiers of cinema."

In an email interview, Frémaux, who heads the viewing committee that selects the films that screen at the festival, said that Un Certain Regard's purpose was "to bring out new trends, new paths, new countries of cinema. It's a selection that favors young filmmakers, especially female directors, and prepares the emergence of future generations."

"We're looking for style, originality, narrative force and conviction," he wrote.

Peter Bradshaw, chief film critic for The Guardian, said that Un Certain Regard was a game changer when it was founded in 1978 by Gilles Jacob, Frémaux's predecessor.

"It doubled the size of the official festival, basically," Bradshaw explained in a phone interview. "Twenty extra titles in what is a very important sidebar." It's taken very seriously — and with that sidebar it created a huge challenge to the other festivals because, you know, other festivals which might have wanted those titles find they're being hoovered up by Un Certain Regard," he said, since the films that screen at Cannes are typically world premieres.

In addition to attending Cannes as a critic since 1999, the year he started at The Guardian, Bradshaw was also a member of the Un Certain Regard jury in 2011 that was headed by Serbian director Emir Kusturica, a two-time winner of the Palme d'Or, the festival's top prize.

The Un Certain Regard awards, Bradshaw added, are particularly valuable for emerging filmmakers like Manning Walker, since it means that "you can come away from Cannes with a prize, which is absolutely gold for a distributor or sales agent."

Lately, Un Certain Regard has launched many of Cannes' most discussed films, such as the Irish-Austrian drama *"Corsage"* (2022), the raucous Icelandic epic *"Godland"* (2022) and the polarizing Belgian film *"Girl"* (2018), about

a transgender ballet dancer.

In his email, Frémaux stressed that the same committee curated the entire festival program, the "selection officielle," which includes various noncompetitive sections in addition to the main slate competition and Un Certain Regard. How a film winds up in one section or another, he stresses, is anything but arbitrary.

"The most important thing is that each film, for what it is, finds its best place," he said. Noting that young filmmakers, including first-time directors, can be selected for the main competition and even win prizes there, Frémaux explained that sometimes a film initially selected for Un Certain Regard has ended up in competition.

"It's important to take risks, as this allows us to make new discoveries," he said. At the same time, he emphasized that Un Certain Regard is where many filmmakers feel most at home at Cannes, away from the hype and cry of the main competition. But he also cautioned against the perception of Un Certain Regard as the festival's second tier.

"When UCR was created, it did indeed look like an inferior section," he said, but added that "UCR, has indeed found a real identity in recent years, because we've changed its mission. It's no longer the 'second division,' it's a section in its own right."

"Even without Un Certain Regard, you can't see everything," Bradshaw said of the often-becoming experience of being at Cannes. "But it does create a new level of POM, because you think, 'Oh my goodness, there's some brilliant movie that everybody's talking about,' and you might not have seen it because it's slightly off the beaten track. And of course, once you get that, everybody wants to try and see the best film that everybody's talking about. In a way, Un Certain Regard is almost brilliantly constructed to create this alternative reality," he said.

Over the past decade, many of the filmmakers most closely associated with Cannes got their start in Un Certain Regard. A decade before Bong Joon Ho's *"Parasite"* (2019) won both the Palme d'Or and the Academy Award for best picture, the Korean director's film *"Mother"* stunned the Un Certain Regard audience. And Swedish filmmaker Ruben Östlund, who won Palmes for *"The Square"* (2017) and *"Triangle of Sadness"* (2022), took home the Un Certain Regard jury prize for *"Force Majeure"* in 2014.

Another example is Xavier Dolan, a 35-year-old French Canadian actor who serves as the Un Certain Regard jury president this year. Two of his films, *"Heartbeats"* (2010) — made when Dolan was 21 — and *"Laurence Anyways"* (2012), were shown in Un Certain Regard. His next two features, *"Mommy"* (2014) and *"It's Only the End of the World"* (2016) both won top prizes in the main competition.

The jury this year also includes Luxembourg-born Vicky Krieps, who won the Un Certain Regard prize for best actress for *"Corsage"*; Moroccan filmmaker Assane El Moudir, winner of last year's Un Certain Regard directing prize; French director Maimouna Doucouré, whose 2020 film *"Custody"* sparked controversy over its portrayal of young girls in a hypersexualized culture; and American film critic and historian Todd McCarthy. They will judge an international lineup of 18 films, including eight feature debuts.

"Last year was a great year," wrote Frémaux, calling on *"How to Have Sex."* El Moudir's award-winning documentary *"The Mother of All Lies,"* and Thomas Calley's dystopian fantasy *"The Animal Kingdom,"* which went on to win five César Awards (the French equivalent to the Oscars).

"I believe that what young filmmakers are putting forward this year is also very exciting, you will see," Frémaux added.