

THE AWARD-WINNING MAGAZINE OF NATURAL VITALITY

BARTON SEAVER
THE PERSONAL SIDE
USUSTAINABILITY

ALLAN SAVORY

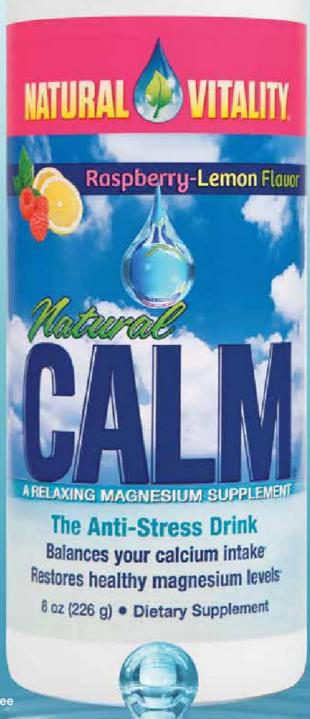
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SUPPLEMENT

The Happiness of Being in the Moment

In this issue





ne of the virtues of doing something with a risk factor involved is that it demands your attention. I learned this in Scuba diving and I learned it again when my wife, Susan, wanted motor scooters for her birthday.

Going through the training required for a motorcycle license fully dressed in the heat of the Texas summer was quite

an adventure (and perhaps a bizarre diet, if you want to lose a few pounds). But the valuable takeaway from all this was a feeling of energized focus. There's something to being fully involved in an action with single-minded immersion. It's also enjoying the process of the activity itself—how it's done and the equipment or tools that are part of it. Artists, cooks and musicians know this feeling, as do runners, rock climbers, skiers, snow- and skateboarders and others. There's a spontaneous feeling of positive energy and a joy of being

alive that is an integral part of the immediate experience.

Why don't we have that more often? It might have something to do with the fact that much of what we normally do *isn't* single minded. Our attention is often fragmented. Phoning while driving, working while thinking about all nature of things, and dividing our daily attention between past, present and future are examples.

Perhaps this is what makes going for a ride so special. Susan (see inset)

and I get suited up, check our gear and bikes, and head out into the traffic with full attention on where we are and what we're doing. But it's not stressful; it's a relaxed attention. It could be compared to a watchful dog or cat—not tense but ready to spring into action as new circumstances require. The *zone* is a great place to be, and what it gives back is a big reward for being in the present moment as if it mattered more than anything else. Perhaps bringing that kind of focus to the less dramatic aspects of life might yield a similar prize. I'd like to know what you think.

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We talk with the noted chef, author, sustainability champion and explorer about his work, observations and conclusions and how to use technology in conjunction with nature.



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The famed founder of the International Culinary Center shares her passion and vision that culminated in the ultimate six-month farm-to-table course for professional chefs.



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Barton Seaver

The Personal Side of Sustainability

by Bruce E. Boyers



of the impacts that we make and the rewards that we expect to glean from them."

The Direct Implications

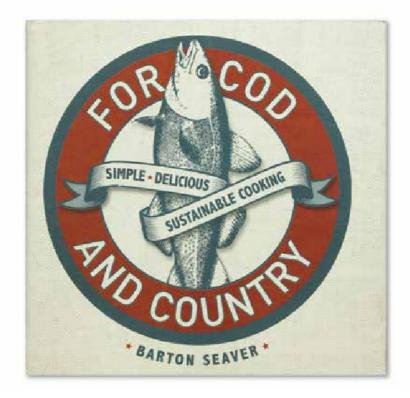
For Seaver, this viewpoint is anything but new. It actually began just after he had graduated with honors from the Culinary Institute of ourselves. I began to understand that environmental conservation is actually a human issue. What exactly is it that we are trying to sustain? I think the answer is quite clearly that we are trying to sustain ourselves; we're trying to recast the narrative of the human relationship with nature to be not one about scarcity or rarity, but rather a relationship with our

Barton Seaver is a multiple-award-winning chef who, from 1997 until 2009, operated seven top-rated restaurants in Washington, DC. Sourcing nearly all his seafood and ingredients locally, he set a new bar for culinary sustainability long before it was a buzzword, and was recognized by several leading ocean conservation organizations.

But Seaver has not stopped there: Due to his deep knowledge and understanding of sustainability, he was offered an esteemed position in the Explorer Program of the National Geographic Society. He has since left the restaurant business behind to travel the world and profile ecological systems—specifically the interrelationships between humans and food systems.

And if that were not enough, Seaver is now also Director of the Healthy and Sustainable Food Program run by the Center for Health and the Global Environment at the Harvard School of Public Health.

"I would say my overall mission is to show people that sustainability is not an external cause, but rather it is born of the opportunities we have every day in every decision we make," Seaver told *Organic Connections*. "Much like health, sustainability is not an all-or-nothing principle but rather the sum and balance of all of the decisions that we make. You can eat a hamburger—go right ahead; that's fine. Just eat a little bit of broccoli maybe later in the week. Healthy diets are the sum of the things that we eat. A sustainable lifestyle is the sum



America and traveled to a village in Morocco, where he spent time with local fishermen. "When working as a fisherman over in Africa, I realized that these men that I was spending my days with were casting nets in hopes of catching dinner and not dollars," Seaver recalled, "and that our interrelationship with nature was about *us*. Why do we fish? To produce food. Why do we eat food? To sustain

natural world based on abundance and based on our ability to thrive within it."

A Very Different Restaurant Model

When he opened his first restaurant in 1997, it struck Seaver how these relationships applied to what he was now doing. "I had spent my summers when I was a child on the

shores of the Patuxent River, a tributary of the Chesapeake Bay," he explained. "There I grew fluent in the bounty of those waters. By the time I became a chef I wanted to express something about myself, express something about my ideas of food; so I went back into my past. I said, 'I want striped bass and bluefish, oysters, crabs—I want all this delicious seafood that I knew so well as a child.'

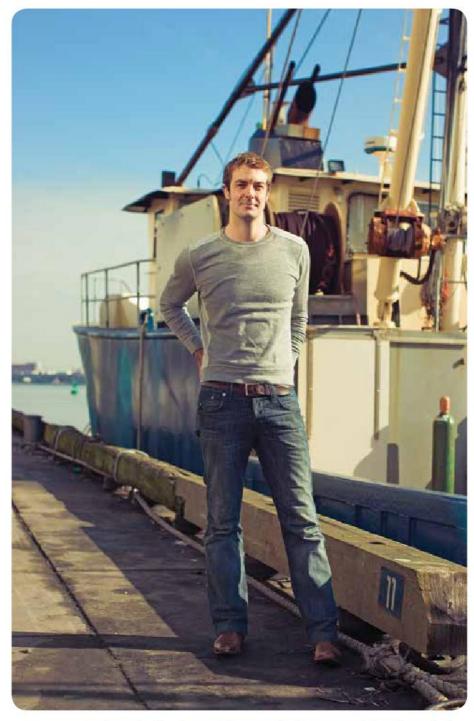
"And basically the answer I got in return was, 'Sorry, we ate all those already. What else do you want?' I realized that the relationships that I had with my guests and what I was serving them affected directly the ability of the people who showed up at my back door to make a living. I like to say the guiding hand of natural selection in our world is quite firmly holding a fork.

"I began to see that, especially in fishing, we as consumers were really placing very irrational demands upon the economy. For example, we ask cod fishermen to wet their gear on our behalf. When those cod fishermen pull the net onto the boat, what comes up with it is cod, pollack, haddock, cusk, wolf,

I would say my overall mission is to show people that sustainability is not an external cause, but rather it is born of the opportunities we have every day in every decision we make.

monk, skates, reds, dogs, flounders, soles, plaice, dabs-you name it-and yet only cod is king. Cod commands enough of a price that it is profitable. All of those other species that I mentioned are not worth anything to the fisherman; they come into that net at a loss of profit and of effort.

"Through my restaurants I started looking for ways to diversify the profit for fishermen. I had thirteen fishermen working directly for



my restaurants, and so I developed a model that said, 'I'll buy what you catch.' If they're fishing on our behalf, I think we have a responsibility to buy what they bring back. I introduced my customers to brotula, rainbow runner, horse mackerel and flying fish; anything that came out of the ocean I figured out how to make it delicious.

"That actually came to be one of the calling cards of my restaurant. It became what we were known for. People were so excited about trying stuff that was new that they'd come in for dinner on Tuesday night and

come back again on Thursday with their friends. It turned into a very desirable thing that people really wanted to participate in. Everybody won: the customer, the fishermen and I, all while taking a smaller bite out of the ocean."

A Matter of Flavor

Like many other early sustainable culinary pioneers, Seaver was following flavor as part of his mission. "Alice Waters was obviously one of the progenitors of this whole ideology, I went out into the

world to discover
a fluency in the
environmental
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through that began
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how smart use of
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leads to thriving
people.

and upon her shoulders many stand," he said. "She started the Delicious Revolution: things were just better tasting. That's frankly why I got into it, because I was buying better fish; if you asked the fishermen what they had, you were bound to get the best product. If you asked them for cod, they were going to say, 'I'll have to go to Iceland for that; I'll be back.' I began to be very proud of the institutions and the systems that I was supporting through my work."

The Hidden Message in the Cookbooks

Seaver has published two cookbooks: For Cod and Country in 2011, and the just-released Where There's Smoke: Simple, Sustainable, Delicious Grilling. Through these he is hoping to convey another side of sustainability—one for those who eat.

"You look through those books at the photos, and more often than not the photo is of a vegetable," said Seaver. "Despite the fact that For Cod and Country is definitively a seafood book and Where There's Smoke is about grilling, both of those books spend as much time, if not more, focused on the gatherer. Vegetables are what make foods truly seasonal. Vegetables are what make food colorful, textured, flavorful and celebratory. So quite slyly both of those books are really written in the lexicon of a plant-based diet. We're never going to sustain ourselves, our wallets, the

oceans or the land if we eat *only* sustainably produced seafood and beef.

"Just as there is sustainable production of goods, there also has to be sustainable *use* of products. This is where I think we've really failed to acknowledge and embrace our role as consumers. You buy a high-level certified humane grass-fed, pastured animal that lived the very best life it could on an integrated farm where it was part of a holistic system, and that's great. But is it okay to take a 28-ounce T-bone home and grill it and eat it up all by yourself? You're not sustaining yourself, and actually you're actively causing yourself detriment. You're evacuating



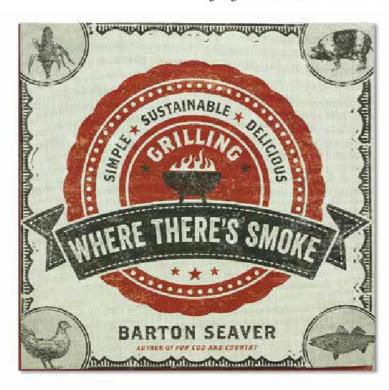
all but 4 ounces of that protein, and by eating more of it than you need you're exponentially multiplying your impact.

"Same thing with sustainable seafood: you can have a wonderfully produced product for all the right reasons, but you put it into an all-you-can-eat shrimp buffet and you fail in your ultimate human purpose of sustainability. So we should certainly focus on sustainability as an environmental factor, but also as a behavioral shift."

Beyond the Restaurants

During his time as a chef, Seaver began to view food relationships philosophically—something which eventually took him beyond being a chef.

"There is a famous 1968 paper called 'The Tragedy of the Commons' by [ecologist] Garrett Hardin," Seaver related. "The idea is



very eloquently stated that man and woman, acting in rational self-interest, will ultimately bring about the ruin of our commonly shared resources. That's largely how environmentalism is practiced. But that's a 'Bad human, bad!' story; it's a guilt trip; it's a story of how we impact ecosystems.

"When I looked at how we are impacted by ecosystems, how those ideologies can be formed through the economies we create, how we can really begin to focus on the way our choices can bring about net-positive human impacts, I started calling that 'The Communion of the Commons'—a much more hopeful, useful and human narrative."

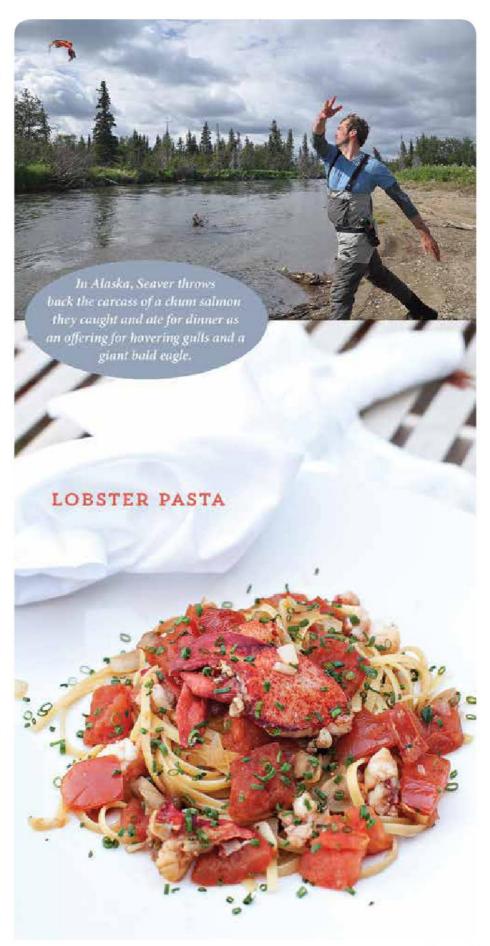
It was at that point Seaver recognized he had to make a crucial career shift. "A restaurant done right takes 120 percent of your time, passion, energy and effort," he said. "I was aware that my passions were evolving past what a restaurant kitchen alone could provide. I would have been doing both the restaurants and myself a disservice had I continued to do them with my attentions divided."

Plus there was an invitation he couldn't refuse. "I also had the opportunity to go to work as an explorer for the National Geographic Society," Seaver continued. "That's hard to turn down. I realized that I was fluent in food systems and in human cultures around food. I went out into the world to discover a fluency in the environmental systems, and through that began to understand how conservation, how smart use of resources, leads to the netpositive human impact; how smart utilization of resources leads to thriving people."

Observations Made

In his time as a National Geographic Explorer, Seaver has made some profound observations. "The first thing I discovered—and I discover every time I leave my house-is that the world is far more complicated than anyone would guess," he remarked. "That's what makes it beautiful. What's really astounding is there is no easy answer. There is no solution forward that cannot not take into full account the economy of being a human on this planet; furthermore a human with basic fundamental rights to clean, fresh water, food access, and the fundamental right to practice and continue his or her culture.

"With the globalization of food and food commodities being one of the driving forces behind a lot of what we consider to be unsustainable, I think all too often the solutions forget to account for the externalities



created within the *human* communities that are a part of these environmental systems. Ultimately as much as economists are wrong to say that nature is not part of business economics, I consider it's equally wrong to say that humans are not part of nature.

"So some of the real hope spots I see are in biomimicry, natural systems that act in concert with each other creating their own input and need cycles, so that they're actually self-sustaining. There are technologies emerging—and not genetic modification technology. It's not about altering nature but rather learning how to work with nature, because the greatest lessons we need to learn are staring us in the face."

A Capital Example

Seaver provided an outstanding example of the use of technologies to bring these interrelationships into balance.

"There's an absolutely fabulous project over in Switzerland called Tropenhaus Frutigen," Seaver said. "It's up there past Interlaken in one of those silly, gorgeous Alpine valleys that looks like it's straight out of a Ricola ad. It was the site of one of the major engineering feats of the twentieth century. A tunnel was bored directly through a giant Alpine mountain to connect two cantons to promote intercanton trade and tourism. They ran into a big problem: right in the middle of the mountain they tapped into a geothermally heated spring, and out of each end of the tunnel was flowing roughly a hundred liters per second of about 65° [Celsius; 149° Fahrenheit] water.

"As you can imagine, the streams running down off an Alpine mountain are not a steamy 65°. They realized quite quickly through their environmental impact study that they were going to kill every bit of fauna and flora in the whole area. Thus on the one side they built a plant to remove heat from the water and to pass it into the ecosystem just at the right temperature. But on the other side was an innovative group of engineers that said, 'We are in Switzerland and we have all this hot water. What are we going to do with it? Well, *duh*, we're going to grow bananas!'

"So they built all these greenhouses and they're growing bananas. They're also growing Ceylon spices, nutmeg and papayas; and it's incredible to walk in out of that cold, brisk, clean mountain air into this sultry, seductive deep, dank scent of a subtropical greenhouse. What an amazing experience! "After that they had a few more gallons of hot water lying around. What did they decide to do with it? Well, of course they decided to grow caviar. They put the water



into tanks on the outside to cool it and imported 60,000 head of Siberian sturgeon. The females get processed for further roe and some of the meat goes into smoked and pâté format. The water that they use for the sturgeon has now been sitting in outside ponds in the middle of the valley, decreasing its heat, so it's at just the right temperature. A little UV filtration and all of a sudden this pristine crystal-clear water is now going back into the ecosystem with absolutely no negative impact.

"They took a problem and figured out how to make no *negative* impact. But additionally, what's the *positive* impact? They're now supplying one-third of the country's need for bananas. With the sturgeon, they're creating a huge windfall for the local economy.

"Then what's the next step? Obviously you open a restaurant. They did that, then opened a café, and then opened a museum to demonstrate the benefits of hydro-geothermal heating. Now guess what? Remember this all started with the tunnel; now through that tunnel every year 200,000 German tourists flock to see these greenhouses. And through the conversion of hot to cold water they're creating enough energy that they're able to give it away to their neighbors. Moreover, they've turned the entire enterprise into eighty-five jobs.

"To me, that's the perfect example of yes, humans have impact. Our choice is to decide what impacts are acceptable and then to balance them. If we can take an excess of hot water and turn it into eighty-five jobs, we're allowing human beings to thrive. Isn't that ultimately what we're after?"

It's Not Just the Environment-It's Us

Overall, Seaver is trying to show the world at large that it's not the environment we're trying to save—it's ourselves. "When we go into the world of conservation, we're not trying to save the oceans; we're not trying to save the ozone layer. We're trying to save people; we're trying to save dinner; we're trying to save our reality on this planet.

"As much as sustainability is an accounting of 'How many people do we have? How many resources do we have? Can we continue this?' sustainability is equally about our expectations of what it takes to thrive in our modern world. It's equally about our cultural preferences for the lifestyles that we want to lead. So sustainability of the environment is as much about finding a balance to human desires.

"If you ask yourself the question, 'Can this world feed nine billion people?' the answer is yes, absolutely it can. Can it feed the desires? No. Need is finite; it is a biology. Desire is infinite and it is a story of biography. What surprises me most in my travels is constantly being reminded that not only must we come up with efficient solutions to ecological models, but we must also rewrite the biography of the human condition to support a sustainable relationship with the nature that ultimately sustains us."

RESOURCES

For more on Barton Seaver, please visit www.bartonseaver.org.

Find out more about Harvard's Center for Health and the Global Environment at http://chge.med.harvard.edu/.

Barton Seaver's cookbooks For Cod and Country and Where There's Smoke: Simple, Sustainable, Delicious Grilling are available from the Organic Connections bookstore.

Check out Tropenhaus Frutigen at www.tropenhaus-frutigen.ch/en/meta/home/home.





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Allan Savory

Healing of Grassland Deserts

by Bruce E. Boyers



Desertification is not a word that many people outside of the scientific community have heard. But in February of this year, a softspoken 77-year-old gentleman named Allan Savory walked out on the TED stage in Long Beach, California, and defined it for the audience: "Desertification is a fancy word for land that is turning to desert." He showed pictures of grasslands that slowly but surely become very dry and eventually waste away altogether, leaving the ground bare. It is a worldwide problem. While here and there scientists might disagree with Savory and his work, none would likely argue with the fact that half to two-thirds of the open land on Earth is undergoing this process.

Savory then told the crowd, "I have for you a very simple message that offers more hope than you can imagine." He proceeded to calmly present the results of his research, documented with images of that same type of land transformed back into lush, green grasslands. When he reached the end of his presentation, the awed audience responded with a standing ovation. Since that time, news of Savory and his accomplishments has been spreading steadily throughout the world, and he has been invited to visit country after country.

While most of us are just now hearing of him, Savory's methods have not been arrived upon overnight by any stretch. His journey has been fraught with decades of frustration and even acute tragedy. But he is now finally getting the word out: over two million viewers have seen that 22-minute presentation, and Savory's assistance is being requested in

many corners of the globe. We caught him just before he left on a trip to Australia, from whence he would be going back to his native Zimbabwe, then on to the UK.

"That TED talk has done more in 20 minutes than we'd achieved in 50 years," Savory told *Organic Connections*. "Finally the public are getting the message."



Grassland Becoming Desert

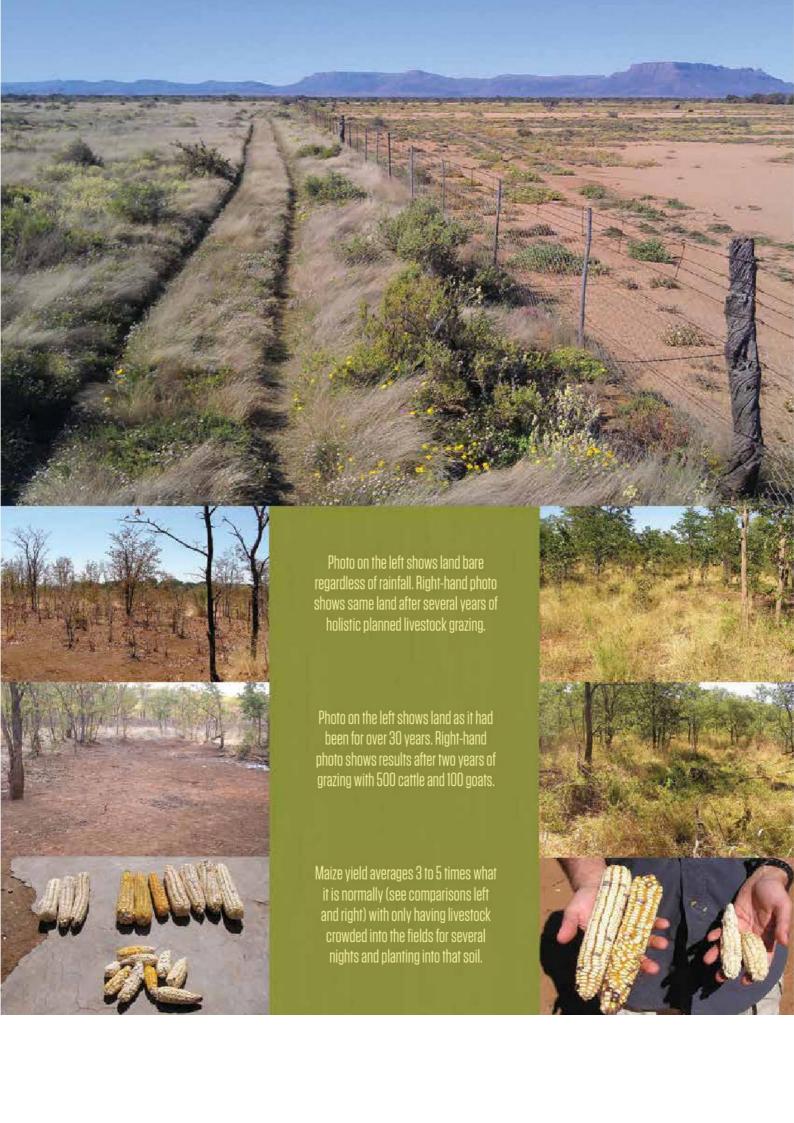
Savory has very carefully researched the desertification process and its symptoms. He will tell you that he's not trying to revive places like the Sahara or the Sonoran Desert. But areas such as the African savanna—widespread grassland that has seasonal rainfall followed by months of dryness—are the prime targets for his methods. "If you take high- or low-rainfall areas where the humidity is very seasonal, you will find millions of acres where the soil is predominantly bare between plants," Savory explained. "In the United States you see it all over Colorado, Texas, Wyoming, New Mexico, Arizona and much of California."

There are obvious places where one can look out across open plains and see no life whatsoever; but by the time land has reached that stage, it is the most advanced state of desertification. Savory points out that the telling signs are there long before such a level is attained. "It won't look bare as you drive by in the car because you're looking *across* grasslands," he continued. "But if you walk out into them and look *down*, you see patches of bare ground. In the bulk of the United States where there is seasonal humidity, you can go to almost any location at random and if you look down between the plants it will be anywhere from 50 to 90 percent bare soil."

Why doesn't the available rainfall revive it? 'We get the rain," Savory said. "We're not short of rain even in some of the very dry areas. But what happens is if that rain hits primarily bare soil, then even if it all soaks into the soil, over the next few days it simply evaporates back into the atmosphere. If we get it in heavy falls or rapid snowmelts, the bulk of it runs off as floods. Both droughts and flooding become ten times worse than they need to be because of the desertification of the land."

Contribution to Climate Change

Savory also makes the point that desertification is a significant contributor to climate change. "If we don't address desertification, we will not stop climate change even after we eliminate fossil fuels," he said. "In addition to fossil fuels, climate change is also being caused by the water that's going into the atmosphere, evaporating from the soil. The soil is our greatest reservoir of fresh available water; it's greater than all the lakes, all the rivers, all the dams, in the world. But in over two-thirds of the world we're losing a lot of the moisture by it just going back into the atmosphere because of desertification. And since the fate of water and carbon are tied to soil organic matter, when we damage soils they give off carbon—carbon goes back to the atmosphere."



Savory explained in his TED talk that a bare patch of ground is much colder at dawn and much hotter at midday than if it's covered with plant matter. Hence the microclimate of the area has been changed. But when this is occurring on over half of the world's land, it is affecting the macroclimate.

The Frustrating Search for Answers

Concern with this issue originated for Savory all the way back in the 1950s, when he embarked on his career in what was then the country of Rhodesia. "I began as a wildlife biologist, recognizing that habitat destruction was more dangerous to wildlife than

and following the age-old belief that livestock grazing was the cause of destruction of grasslands, he made sure that the land he was setting aside would be untouched by livestock.

To his great surprise, Savory found that the lands so isolated deteriorated rather than improved; the desertification process increased. Conducting further research, he concluded that wild elephants were to blame and recommended their numbers be reduced. Very unfortunately, a team of government experts agreed with his findings, resulting over the following decades in the killing of some 40,000 elephants.

"Loving elephants as I do, that was the saddest and greatest blunder of my life, and I

good thing did come out of it: it made me absolutely determined to devote my life to finding solutions."

Savory continued to search for answers. "After the government went ahead and shot thousands of elephants, the situation as I watched it got worse, not better," he said. "We then had one area where all of the livestock died of starvation and drought. Then 50,000 head of game died of starvation. We had almost nothing left on the land, and I along with other ecologists thought that the land had reached a point where it could no longer recover. I actually published a paper on that, and it was approved by my peers. That's embarrassing today because we were all wrong."

The First Discovery

Throughout the 1960s and 1970s, Savory engaged in a long-term project to discover if desertification could be reversed counterintuitively by increasing livestock planning and grazing to mimic nature before human intervention. He found that, to some degree, it could. "I developed the planned grazing to solve the problem of traditional herding and modern rotational grazing systems accelerating desertification," he said. "But I was still getting erratic results."

When in 1979 Savory came to the US, he was to discover that desertification was not at all a problem peculiar to his native continent. If found national parks with no livestock, no big game, nothing—just totally rested land where the government had spent millions of dollars on planting grass and other soil conservation measures," he recalled. "I found them to be just deep arroyos and gullies, and worse desertification than I was dealing with in most of the areas in Africa.

"American range scientists were certain that overgrazing and overstocking was the



poaching," said Savory. He became part of a project setting aside lands for national parks,

will carry that to my grave," Savory told the shocked, silent Long Beach audience. "One

If we don't address desertification, we will not stop climate change even after we eliminate fossil fuels. In addition to fossil fuels, climate change is also being caused by the water that's going into the atmosphere, evaporating from the soil. The soil is our greatest reservoir of fresh available water; it's greater than all the lakes, all the rivers, all the dams, in the world. But in over two-thirds of the world we're losing a lot of the moisture by it just going back into the atmosphere because of desertification. And since the fate of water and carbon are tied to soil organic matter, when we damage soils they give off carbon—carbon goes back to the atmosphere.

Joel Salatin on Allan Savory

While much of the world has not heard of Allan Savory until recently, there are those who have been closely following his work and emulating it for decades. One such person is Joel Salatin—farmer, author, featured speaker, and the subject of several documentaries. Salatin and his Polyface Farm first came to prominence in 2006 as the centerpiece for Michael Pollan's groundbreaking bestseller The Omnivore's Dilemma, and since that time his sustainable grassland farming methods for raising livestock have served as a shining example

of how to do it right. His profit per acre is many times that of his industrial-farming neighbors.

I became aware of Allan Savory's work in its earliest days. I found that it corroborated our own and added refinements we hadn't put into practice yet. An icon in this movement, he deserves a huge debt of gratitude for persevering when most thought he was crazy and for inspiring a tsunami of ecological healers. I revere him are on a spot and how long the spot rests before the animals return.

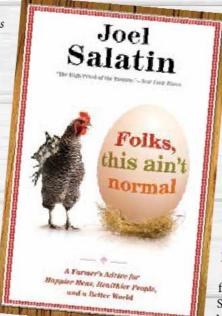
Voisin's research did not take place in arid regions, but the principles he discovered and publicized in the early 1950s apply to all ecosystems. Although Voisin never realized the effect in dry areas, the effects are just as ecologically profound as in more temperate zones. My father read Voisin's material in the early 1960s and began controlled grazing here at what is today Polyface Farm, prior to the infrastructure we have today that makes it easier, such as electric fencing and plastic

water pipe.

As with all great discoveries, numerous people were working on the system in different parts of the world simultaneously. Our family, like other lunatic-fringe devotees, was experimenting with tight timecontrolled grazing and ecological monitoring at the same time Savory began to popularize his permutation into Holistic Resource Management.

We became better grass farmers as a result of Savory's tireless efforts. Meanwhile, we've seen our organic matter go

from an average of 1 percent to about 8 percent. We've seen water runoff



We became better grass farmers as a result of Savory's tireless efforts.

Each ecological sweet spot yields multiple benefits, some of which aren't discovered until many years later. In his lectures, Allan Savory usually refers to a Frenchman named André Voisin as the godfather of proper grazing management. It's all about *time*: how long the animals

as I would any genius upon whose shoulders

reduced, earthworm castings increase exponentially, and animal carrying capacity jump from 20 cows to 120 cows on the same acreage. The beauty of this paradigm is that it does not put ecology and economy in competition; it puts them in symbiosis. And that's pretty awesome.



problem. They created research plots with totally rested land scattered all over the western states, and when I began looking at the ones located in areas of very seasonal humidity and particularly low rainfall, I found them all desertifying. They had pretty well shown that by removing the animals it got worse; yet because of the deep belief about overgrazing and overstocking, they couldn't see that the data was challenging the belief." "Large herds dung and urinate all over their own food, and they have to keep moving. And it was that movement that prevented the overgrazing of plants, while the periodic trampling ensured good cover of the soil, as we see where a herd has passed."

Initially Savory attempted to apply this observation in fenced areas where livestock was conventionally kept. "Try to picture you've got a bit of land, and let's say it's divided into ten

keeping it in the soil through keeping the soil covered, which the cattle hooves do by laying the litter. Each year you're accumulating more; so each year you become more and more drought resilient."

Vital Need of Agriculture

At the TED conference, Savory showed how this process of holistic planned grazing, using

In reality, desertification is only a symptom of biodiversity loss; without it desertification does not occur. And without reversing desertification we cannot address climate change.

They're all actually *one* issue, but we haven't ever been able to get people together to discuss them as one issue in one conference or anything like that.

But there was an additional confusing factor: desertification wasn't only occurring on land that was being totally rested from livestock. "I still couldn't understand how rest was the biggest factor, because much of the desertifying land in the United States had animals on it—elk, deer and others," said Savory. "Then all over Africa where the land was desertifying we had animals—in the national parks, in the communal lands; so it was inconceivable that the land could be overresting."

Thus, which was the real issue—overrest or overstocking? It was here that Savory made an interesting discovery. "I began looking inside the plot, then outside the plot, to see what we could learn. Inside the plot we had all animals removed. Outside the plot we had plants being overgrazed, but actually by relatively few animals. I began to realize that whether you totally rested, or decreased the animals and *partially* rested, the effect on the land was almost identical: it deteriorated."

The Breakthrough

That investigation carried forward into the mid-2000s, when Savory finally discovered the ideal balance. As he explained to the TED attendees, "What we had failed to understand was that in these seasonal humidity environments of the world, the soil and the vegetation developed with very large numbers of grazing animals, and that these grazing animals developed with ferocious pack-hunting predators. Now, the main defense against pack-hunting predators is to get into herds; and the larger the herd, the safer the individuals.

paddocks with fences," Savory said. "You plan the moves of the herd to get the animals in the right place at the right time. You hold them there for one or two or three days and then move them on so that you don't overgraze the plants; you don't come back until the plants have recovered. In this way you've partially rested the land."

While Savory certainly saw results, they weren't of a consistent level. He then decided to exactly mimic his original observation. "Now take that same land, and those ten paddocks are not fenced; they are just roads, elephant paths, rivers—anything that the herders can see on the ground and recognize as divisions. So, our land in Africa is divided into about ten paddocks, but there's not a single fence. We do exactly the same planning and plan the moves of the animals; however, when they are in one of these areas now for, say, twenty days, following which the area will have perhaps two months of recovery time, they are herded, and the herders are trained to not have the animals graze and trample any part within the paddock for more than three days. In this manner, day or night, 500 cattle are on less than two acres. They're bunched the whole time as they would be if they feared predation.

"That made a world of difference. We literally ran out of bare ground even for teaching purposes—we have to hunt for it now. This year we're in what would have been a catastrophic year, drier than we have seen for 15 years, and we've grown more grass, shrubs and trees than we did in the best of years in the past.

"That's purely because we've made that rainfall effective. You make it effective by livestock to mimic nature, is being employed to revive farmland in Africa. Livestock are being moved over land that will later be used to grow crops, and as a result they have seen a marked increase in crop yields. This leads to applications across the agricultural spectrum, which of course includes the raising of livestock as well—an activity that takes the majority of agricultural land use.

Because so much of the world's land is utilized for agricultural purposes, Savory targets agriculture as the most critical recipient of his methods. "We've got seven billion people on Earth, and one billion go hungry most days," he stated. "We need roughly half a ton of food to feed a human for a year. Soil scientists estimate that we're producing four tons of eroding soil per human alive, every year, from the croplands, which is where they've done most of that research. If we look at the loss of soil from the other 80 percent of the land, we don't have figures; nobody's got them and I don't know how you'd get them. But I would conservatively say we have to be losing eight to ten tons of eroding soil every year for every human alive today, and that has to be the most frightening statistic in the world. Without agriculture you can't have a church, you can't have an environmental organization, a university, a government, an army; you can't have any of these things. Agriculture is fundamental to an economy, to everything."

Healing the Fractured Whole

Meanwhile Savory is also addressing the desertification problem on the policy stage,

where it is an issue that crosses boundaries in isolated areas of expertise, policy and research. "It's really an enormous problem and we've always fractured it," Savory said. "You have whole environmental organizations, departments in universities, and conferences built around biodiversity loss. Then you have entire conferences and the range profession dealing with grasslands of the world that are desertifying; plus you have separate scientists and conferences dealing with climate change.

"In reality, desertification is only a symptom of biodiversity loss; without it desertification does not occur. And without reversing desertification we cannot address climate change. They're all actually one issue, but we haven't ever been able to get people together to discuss them as one issue in one conference or anything like that."

Rather than tackling the problem with enormous governments such as the US or the EU, Savory is utilizing a smaller country to demonstrate how it can be cooperatively solved. "To change the United States' direction is like trying to turn an aircraft carrier with a paddle in your hand," he said. "But taking a small country in trouble, we might be able to do something. I'm focusing a lot on my own country, where I spend about six months of every year. Recently I got a chance to put 35 members of parliament lawmakers through a workshop using the holistic framework to formulate policies.



Contrast between normal maize crop (left) and area planted following livestock grazing (right)

address complexity. You see, no government at the moment knows how to do that."

Into the Future

Savory has a dedicated, competent team in place to help him carry on his work, in the form of the Savory Institute of Boulder,

purposes, if we do what I am showing you here, we can take enough carbon out of the atmosphere and safely store it in grassland soils for thousands of years. And if we just do that on about half the world's grasslands, we can take us back to preindustrial levels while feeding people. I can think of almost nothing that offers more hope for our

People who understand far more about carbon than I do calculate that, for illustrative purposes, if we do what I am showing you here, we can take enough carbon out of the atmosphere and safely store it in grassland soils for thousands of years. And if we just do that on about half the world's grasslands, we can take us back to preindustrial levels—while feeding people. I can think of almost nothing that offers more hope for our planet, for your children and their children and all of humanity.

"We defined a holistic context for the nation. When we did that, the whole atmosphere changed. Everything soared above politics. Nobody raised any political issue or dogma. By the end of the workshop we had the foundation for a policy for the country that, if it was implemented, would have us producing for the first time in the world more food than eroding soil—our rivers would be healing; we wouldn't be fighting water wars. And we didn't use any knowledge that isn't available today; the secret is just in how to form policies to

Colorado. "It is this vibrant organization of deeply committed people and its global strategy of learning hubs that will carry the baton," he said.

It could well be that Savory and his institute are now but a few short years from seeing his extraordinary vision become reality. He summed up that vision-and its enormous potentially positive impact-at the conclusion of his TED presentation: "People who understand far more about carbon than I do calculate that, for illustrative

planet, for your children and their children and all of humanity."

RESOURCES

To see Allan Savory's TED talk, please visit www.ted.com and search for Allan Savory.

More information, as well as updates on the work of the Savory Institute, can be found at www.savorvinstitute.com.

Dorothy Cann Hamilton

Ultimate Farm-to-Table Course for Chefs



Dorothy Cann Hamilton is among the who's who of international cooking. The International Culinary Center, which she founded in 1984 as the French Culinary Institute, has become one of the world's most highly respected cooking education centers. It has launched the careers of more than 15,000, among them many of America's most prominent chefs. For her continuous passion and tireless work in bringing the best in culinary training to the world, Hamilton has received numerous awards and recognitions, including *Chevalier de l'Ordre du Mérite Agricole* (Agricultural Merit Knighthood) from the French government. She created and hosted the 26-part television series *Chef's Story* on PBS, and since May 2012 she has hosted an

online radio series by the same name where she interviews today's leading chefs.

The International Culinary Center has recently initiated the ultimate Farm-to-Table Course, educating chefs on every detail of what it takes to utilize fresh, local and seasonally available ingredients. "To fully train chefs, we changed our name from the French Culinary Institute to the International Culinary Center for lots of reasons, but primarily because we've gone into other cuisines," Hamilton told Organic Connections. "The interesting part of that is we've changed from institute to center because I firmly believe you can't train a chef any longer just within the four walls of a kitchen. You have to take a chef outside. It actually starts outside in the field, be it the field for vegetables or the field for grazing of cows. They have to understand where their product comes from and how it's been either raised lovingly or manipulated."



16 organic connections

Germinating for Years

Although the program has just come about, it had been in the forefront of Hamilton's mind for some time.

"First of all I'm an avid gardener myself, and I have a biodynamic vegetable garden," Hamilton explained. "I've had a garden since I was a little girl. My grandmother was a gardener and we always had great vegetable gardens.

"The whole sustainable movement was very appealing and interesting to me, going back ten years, when I invited Alice Waters to be our Dean of Sustainability here, which she was for five years. I was really looking at the vegetables and even farming—not so much farming practices back then but mostly produce from a flavor standpoint. During that period we had sort of a forum of the top-grade chefs in New York City, which included Dan Barber—who is one of our graduates—and Mario Batali. With Alice, we had a real honest dialogue about how feasible is it for restaurants to serve sustainable and organic produce in the winter,



given the challenges and costs of running a restaurant.

"That's when I got very interested in the subject as saying this is something that our students have to study right from the very beginning. That all happened around 2005, and since then I have been dreaming about these farm-to-table programs. It's taken this long to make the ultimate one."



Passion for Seasons and Land

The ultimate Farm-to-Table Course could never be taught in one local geographic area only—and so it isn't. "We operate in two regions in the United States," Hamilton explained. "One is in California—with facilities in Silicon Valley and outside of San Jose—and the other is in the heart of New York City and just out into the country of New York State. That's like two different planets if you're talking about growing and farm to table."

Hamilton has recruited some of the best farm-to-table chefs in the business. For the East Coast, part of the curriculum was created by Chef Dan Barber and is delivered at the renowned Stone Barns Center for Food and Agriculture in Pocantico Hills, New York. For the West Coast version, two-Michelin-starwinning chef David Kinch, owner of Manresa restaurant and exclusive buyer of ingredients from nearby Love Apple Farms, is a dean of the International Culinary Center.

"They're two entirely different programs," said Hamilton. "The program on the East Coast deals with four-season gardening, urban rooftop gardening, and training at Stone Barns Center. Dan Barber wrote the curriculum for the Stone Barns portion, which deals with things like understanding soil, seeing how an animal is broken down, and understanding that eggs are seasonal (most chefs

don't even know that). They learn to listen to the earth and the seasonality of the earth.

"On the other hand, out in California, we are at the tip of the Salinas Valley, which feeds 10 percent of America. That's a huge statement. It is the place where we can delve into responsible industrial farming. Students visit Bolthouse Farms, sit on the back of a combine and watch 10,000 pounds of carrots being harvested. They then visit a small or midsized farm, where a chef can form a relationship and work with midsized farmers and see what the price point of that carrot is. Ultimately they go to Love Apple Farms, from which Chef David Kinch gets his produce, and learn what a real artisanal carrot is. So they see three different price points on carrots and what goes into those differences.

"We use the Monterey Aquarium as our classroom to teach sustainable fishing practices, and also visit responsible fish farms. Students go down to Paicines Ranch, where these people raise grass-fed cattle. They learn the differences of grass-fed and see those animals broken down, and they spend a night at the ranch. They go to the Ferry Building in San Francisco and observe how chefs set up relationships with midsized farmers and how they do their buying through the local farmers' markets.

"That is what is so exciting to me—that we're able to have two platforms dealing with farm to table with all the nuances of certain geographic areas."

Already Working Professionals

"The response to the program has been fantastic," Hamilton reported. "Students are just loving it. As with anything else, we constantly tweak the program, take their feedback and make little changes. The course itself is only six months, but it's incredibly intense. It puts you in very dynamic places where you can feel the passion, but you can also see the quality and you can understand the sweat that goes into creating amazing products.

"Typical students of the program are 28- to 30-year-olds; they are chefs who have been working professionals and they're career changers. They are usually already as passionate about the sustainable movement as they are about cooking professionally. It generally isn't someone who comes in and says, 'Oh, that looks like an interesting course; I think I'll take it.' Most of these people are very committed to the environment, to sustainability, to organic, and want to know how to do it for themselves. They

see that as part of their journey; not just to be a chef, but to have a strong relationship with the farmer or breeder."

Ingredient Location and Care

As somebody who founded and operates one of the world's top culinary academies, Hamilton has a particular set of criteria for farm-to-table ingredients and the way flavor is brought out in them.

"I might be controversial on this, as I don't think it's simply a label like 'organic,' Hamilton said. "My view is it has a lot to do with where you're getting your food from and how the soil has been handled. I believe what affects the flavor is how dutiful you are in taking care of your soil—keeping it rich, keeping it well nourished and respecting it. The sustainable aspects are very, very important for flavor.

"There is also location—where food is grown. I notice this when I travel and I eat. I've still not had a carrot in America that tastes as good as the big carrots I get in France. It has everything to do with the location where they're grown. Another example of that: I have a great devotion to lobster because my family comes from an island off Nova Scotia, and the lobster there is sensational. It has a taste like no other lobster in the world, and it's because there is such a thing as 'mer-oir.' We've heard of terroir, which takes into account all the topographical, meteorological and physical characteristics of where something is raised. This really is the marine version of that, mer-oir, because the waters are 750 miles out into the ocean in the North Atlantic. The waters are extremely cold, and the lobsters feed off rocks with special microproteins that affect the flavor of the lobster meat. These lobsters don't get put in pounds with the temperature lowered to two degrees where they're kept dormant for two months, then they wake up and their meat is flabby.

"So the whole environment affects the flavor, and I think that that is the most important thing. Our ocean regions provide flavor; our soil gives flavor. People have known this about wine for a long time, and I'm surprised that it hasn't caught on that it affects everything else too."

Fine-Tuned Culinary Curriculum

For those who aren't already professionals, the center has a reputation that precedes it in terms of teaching culinary preparation—and this aspect has been fine-tuned through long experience.

"That's what we're best known for after thirty years," Hamilton pointed out. "It's the fundamental classics. It's like studying Greek and Latin, or studying classical ballet if you want to be a dancer. You get your fundamentals down cold. It's based on the canon of French classic cooking; however, we are constantly tweaking and updating it for new methodology that comes in.

"It's learning to respect the kitchen, to respect the environment, the people you work with, and most of all to respect the product; it's learning how to make the most fundamental base recipes and then building from there. There are rudiments such as holding a knife, cleaning your station, keeping yourself cleanthe disciplines of the kitchen.

"You'll spend three days doing stocks and sauces, but you'll also spend a day on potatoes, and another day on eggs. You'll really understand the egg-not just a recipe and how to do it. You have to sort of get into the DNA of these elements, because you have to know how to fix things; you have to know how to multiply things; you have to know, as a professional, how to hold a dish if it's not quite ready to go out; you have to know how to multitask.

"The fundamentals of that course we have neatly tied up in about six hundred hours or six months, and that is the base for everybody here. It changes a little; if you're doing Italian, the products are Italian, and we have a new Spanish course with José Andrés."

Farm-to-Table to Mainstream

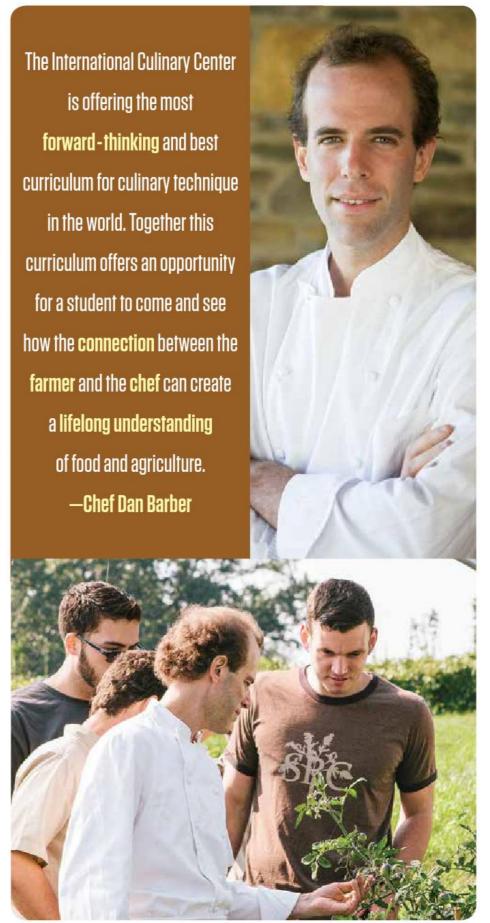
While the ultimate Farm-to-Table Course is currently its own entity, eventually Hamilton sees it as becoming the norm.

"We're calling it farm-to-table now," Hamilton concluded. "I expect going forward it will simply be a given. I mean, where does your produce come from anyway? A farm! Where does your work end up? On the table in front of someone. I find it amusing that we now are just discovering where our food comes from. It comes from a farm, and it used to be rural but it doesn't even have to be anymore. I see this getting more and more integrated into the actual course itself."

RESOURCES

For further information, please visit www.internationalculinarycenter.com.

Check out Dorothy Cann Hamilton's Chef's Story blog at www.lovewhatyoudo.com.



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