

not affect the global economic balance; the only thing needed is the political will.

It is a good thing to increase the fiscal deficit when the health and lives of people are in danger. It is not we who say this but, contradicting the usual conservative ideology of the IMF, Christine Lagarde, its director, who said it and acknowledged that the IMF doesn't say it often. But we should not have to wait for great humanitarian crises such as that caused by Ebola for people to see the clear need to increase the deficit in order to fund social services. Also, international law requires that compliance with basic human needs be a priority compared to bleeding resources to pay the debt.

The IMF, which inhumanely ignores serious human needs, must disappear; those responsible for its decisions should be brought to justice for their actions. The devastating IMF policies have damaged too many people through neoliberal debt programs to be allowed to continue with impunity. Similarly, the Spanish State should withdraw as soon as possi-

ble its Article 135 of the Constitution, which contravenes the international law that establishes the priority of human needs before any other expense—a fortiori, the debt service. This is a matter of human survival, not the accountant's books.

Some references:

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Questions for Conscientious Cannabis Consumers

How Green Is Your Pot?

by Kollibri terre Sonnenblume

It's not news that marijuana is becoming mainstream in the US, and as legal restrictions loosen and social acceptance grows, the amount of marijuana being cultivated is rising rapidly. A big business is getting bigger. The cottage-days of the industry were left behind in the 1980s and if anything holds true in the American economic system, it's that larger scale brings lower quality and greater damage.

Conventional food agriculture is a case in point: it wrecks havoc on ecosystems, its products are unhealthy, and the farmwork itself is underpaid and dangerous. As these facts have been publicized, many people have become rightly concerned about where their food comes from. The same questions that can and should be asked about produce—Was it sprayed? Is it free of contaminants? Were the workers mistreated?—can and should be brought to bear against marijuana now.

Because marijuana is such a high value crop, reams of data have been collected about its cultivation—by government agencies, educational institutions, and growers themselves—so we have enough

most densely in Northern California, from Arcata to Ukiah, in Trinity, Humboldt and Mendocino counties, the so-called, "Emerald Triangle." Another notable center is in Southern Oregon, in the triangle made by Grant's Pass, Cave Junction and Ashland, with Williams at its heart. I have traveled repeatedly through these areas since 2010 while looking for land to farm on, and I couldn't help but run into pot farms. With a decade of farming experience under my belt, I had enough general agricultural sense to observe what I was seeing with a keen eye, and what I observed is this: More so than nearly any other crop, marijuana is resource-hungry and labor intensive.

I have also noticed that, for the most part, marijuana enjoys a free ride when it comes to questions of agricultural sustainability. Many people seem to assume it's grown by happy hippies, singing songs and feelin' groovy, taking care to treat Mother Earth with love. While there are a handful of people like that out there, they are small-scale, producing mostly for themselves. When it comes to production growers, the majority are plain old capitalists, in it for the

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information to assess many impacts already. This article focuses on the "Green" issues: environment and labor.

Marijuana is grown outdoors and indoors, the majority of it outdoors. The debate over which method makes for better bud has dogmatic partisans on either side and will probably never be decided. From a Green perspective, both have advantages and disadvantages and both could be improved. Generally, indoor has a higher carbon footprint while outdoor is more destructive to its immediate environment.

Marijuana is grown outdoors all over the USA and Canada (including Alaska) but is concentrated

money, who are aiming for the biggest harvests at the lowest cost, regardless of the effects, ecological or otherwise.

So what is the conscientious consumer of cannabis to do? Start with these questions and if you can't ask them to the grower directly, see if your dealer or budista can give you answers.

Question #1: What chemicals were used to grow my pot?

As in the wider agricultural world, a small number of pot farmers grow their crop organically without the use of chemical pesticides or fertilizers. Most, however, use conventional methodology. Some growers even use products manufactured for lawns or other non-food crops that are not intended for human consumption, according to the *Huffington Post* ("Marijuana Pesticide Contamination Becomes Health Concern as Legalization Spreads"), which also noted that, "medical cannabis samples collected in Los Angeles have been found to contain pesticide residues at levels 1600 times the legal digestible amount." The dangers of agricultural pesticides to human health are well-documented but the human consumer is not the only victim. The greater ecosystem is also contaminated: water, soil and air.

The Independent, a newspaper published in southern Humboldt county, reported ("Researcher: Trespass Grow Impacts Intensifying," 11/11/14) on some of the environmental effects of "trespass grows" (when marijuana is cultivated on public or private timberland, unbeknownst to the owners):

A team of government agencies and non-profit groups cleaned seven trespass grow sites in Humboldt and Trinity counties and documented their environmental impacts. Dr. Mourad Gabriel, executive director of the Integral Ecology Research Center, said the sites diverted over 65 million gallons of water from the Trinity River and used over 8000 pounds of fertilizer, 104 pounds of rodenticide and 560 gallons of insecticide.

Gabriel's field research since 2008 has focused on studying the effects of rodenticides on Pacific fishers:

Pot growers have been taking so much water that wildlife are being adversely affected.

"We have a serious issue here, an issue where now we're having additive mortality and take of a species proposed to be listed," Gabriel said. "And all these mortalities are specifically from toxicants utilized at marijuana grow sites." Exposure to toxins has also been confirmed in insect and soil samples, he con-

tinued, demonstrating an over-all "contamination of the food web."

Humboldt County Supervisor Mark Lovelace said the findings at trespass sites are probably also relevant to grows that are "otherwise legal." Gabriel agreed... "With an estimated 4,000 plus grow sites in the county, "I think it would be naive for us to say that all of those are clean," Gabriel continued.

I have often seen anti-rodenticide billboards in the Emerald Triangle, and at first I didn't know why they were posted. The ads have a tag-line such as, "Rat poison doesn't just kill rats," accompanied by pictures of coyotes, birds, cougars and domestic pets. Now I know that it's the marijuana growers who have been using it, often it seems at large trespass grows where people aren't on site to watch the crops themselves.

Indoor growing operations also rely heavily on chemical inputs, both for plant performance and pest control. (Hydroponic systems are usually "flushed" with clean wa-

ter prior to harvest so that the flavor of the marijuana isn't spoiled by a "chemmy" taste.) Where is the pollution from urban indoor operations going? Into the sewers and back into the environment, further downstream. Rural indoor grows deposit waste water in septic tanks in a best case scenario, but in the absence of such a system will pump it out into field or forest.

On a related question, the conscientious consumer should also ask: Are there any other impurities in my pot? Mold, for example, is perennial issue in the Emerald Triangle. Harvest-time—late September through early November—is when the rains return. This increased moisture, combined with cooler temperatures and shorter days, is a perfect recipe for fungal growth. In a fresh crop hung to dry in close quarters, one contaminated branch of buds can spread spores to the others. Is mold dangerous to inhale? Heck yeah. Google "Aspergillosis" if you want to find out more. Think tennis ball sized fungal growths in the lungs that can only be removed with dangerous surgery.

Question #2: Where did the water come from to irrigate my pot?

Marijuana is a thirsty crop. The standard estimate is that each outdoor plant takes 1–6 gallons of water per day. While drought has intensified in California and southern Oregon, pot growers have been taking so much water from local rivers and creeks that wildlife are being adversely affected and in some cases water flows are ceasing entirely during the summer.

According to the *Redwood Times-Standard* ("Yes, Uncle Sam—grows are bad for salmon," 10/17/14), the federal government considers Humboldt County's marijuana industry to be "a threat to coho salmon" due to its overuse of water. The Eel, Trinity and Mattole Rivers and Redwood Creek are all considered "heavily impacted by marijuana

grows.” Salmon spend their first year in freshwater before swimming to the ocean, so when a stream runs dry, they have nowhere to live. This is assault on a creature already endangered from over a century of previous destructive human activities including mining and logging.

According to *The Guardian* (“Marijuana cultivation in California is sucking streams dry, says new report”), the California Department of Fish and Wildlife “saw the amount of land used to grow marijuana approximately double from 2009 to 2012.” With this expansion, the impact on wildlife has been “significant.” “[F]our of five streams in the research area that reach marijuana farms went dry last summer. The only stream that didn’t wasn’t a source of water for the crop.”

Individual growers are not necessarily breaking any laws in their water use. Says the Guardian: “California’s water rights law doesn’t specify how much or at what rate those who live along a stream can draw. Those property owners can draw as much as they deem reasonable for domestic use, and they don’t have to meter how much they take.” The conscientious consumer needs to seek out growers who will voluntarily limit their irrigation before it becomes harmful.

Question #3: What is the carbon footprint of my pot?

Indoor marijuana cultivation uses electricity for lighting, heating, ventilating and dehumidifying. A 2011 report by Evan Mills, PhD, called “Energy Up In Smoke: The Carbon Footprint of Indoor Cannabis Cultivation,” makes detailed estimates of energy use. Some of his numbers:

After legal medical use was passed in California in 1996, residential electricity use in Humboldt County rose 50%.

Annual electricity use nationally in growing pot is equivalent to 2 million average US homes.

Associated emissions of CO₂ total 17 million metric tons, “equivalent to that of 3 million average American cars.” In California, approximately 8% of all residential electricity use is for indoor cultivation. A single joint “represents 2 pounds of CO₂ emissions, an amount equal to running a 100-watt light bulb for 17 hours.” One pound of processed marijuana represents over 6500 pounds of CO₂ emissions. The amount of wattage used per square-foot is “on a par with modern data centers.”

Off-the-grid operations dependent on gasoline or diesel generators are 3–4 times more carbon polluting.

These figures are four years old, which is a long time in the rapidly innovating world of indoor propagation equipment, where efficiencies are always improving for the sake of holding down electricity bills. Nonetheless, indoor cultivation remains an energy-intensive proposition.

Outdoor-grown marijuana has a much lower carbon footprint, though it, too, utilizes lighting and heating for starting seeds, raising young plants and drying. These activities are powered by grid electricity, generators or wood stoves depending on the circumstances. Additionally, a new technique called “depping” has been gaining popularity. The term is short for “light deprivation.” Hoop-houses are covered with an extra layer of non-transparent plastic to exclude sunlight so that plants can be given light on a rigid schedule of so many hours on, so many hours off,

with electric lighting being used to achieve this. The technique is supposed to boost production. Whatever the case, it adds more energy use to the process.

Question #4: What were the wages and working conditions of the laborers who processed my pot?

Starting, growing and harvesting marijuana can be accomplished by the growers alone, or with occasional hourly help. Processing the product for sale, however, is a different story, and this is where outsiders—often many of them—are brought in. The most time-consuming step of processing is “trimming.”

“Trimming” is when buds are removed from stems and carefully sculpted into market-ready nuggets. Though some trimming-machines are now being marketed, hand-trimming is still required, at least to finish; marijuana buds are simply too varied in shape and size, and machine-trimmed buds are unacceptable to many buyers.

So, lots of people are needed to trim and when it’s harvest time in the Emerald Triangle, lots of people show up. Called “trimmigrants” by the locals, they

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come from all over the USA and from overseas, including Australia, Europe, South America and the Middle-East. They are mostly, but not exclusively, people in their 20s. The fastest trimmers, though, are often older women, in their 40s or 50s.

Trimming is performed with “snips,” small scissors with short, pointy blades. Growers provide snips, but serious trimmers often bring their own and guard them jealously. Because the blades get sticky from resin and must be cleaned every few minutes, it’s best to have two sets so one can be used while the other soaks (in rubbing alcohol and/or vegetable oil). A good pair of snips costs \$25–30.

The repetitive, sedentary nature of the work frequently takes a physical toll on trimmers, including repetitive stress syndrome, back and neck aches, and eye strain. It should go without saying that injuries are not covered by worker’s comp! Crowded work settings with a constant influx of new people are

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germ factories and illness is run-of-the-mill. A persistent, deep-seated, seasonal cough is so consistently common every year in Northern California that it is known as “The Humboldt Hack.” Herbal tincture remedies in local stores call it by that name on their labels.

Living conditions for trimmers on pot farms are often quite rustic, but not always in a charming way. Indoor plumbing is usually reserved for residents, so for toilets, trimmers have port-a-potties (that might

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not get serviced), out-houses (that fill up), or must dig their own holes in the ground. Showers are rare. Camping is usually the only accommodation and when the rains start, a tent can be pretty miserable, especially if you’ve caught the Humboldt Hack. The indoor working spaces are almost always heated well, but that’s required for drying the crop and keeping it from molding, so trimmers shouldn’t take this personally. Providing cooked meals to the trimmers was once standard practice, but has become rare. The better farms let trimmers use the kitchen, or organize revolving cooks. At other scenes, you are charged for meals or can go it on your own with a Coleman stove.

Trim work is piece work, meaning people are paid not by the hour but by the amount they trim. An inexperienced trimmer will struggle to finish a pound a day. Someone who’s really gotten the hang of it can do two pounds a day. Amazing trimmers (usually one of the older women) can get through four pounds. A few, truly extraordinary people can do more than five. The average for most people—who aren’t beginners or older experts—is around a pound and a half a day.

The work schedule is 12 hours daily, 7 days a week. Most growers require trimmers to process at least a pound a day or they will be fired. Consistent work at a particular location lasts anywhere from a few days to a couple months, and can end on very short notice (as in, “Everybody’s gotta be outta here tomorrow!”). As bosses, a few growers are mellow, but more are jerks and all of them are stressed out. Coked-out egomaniacs are definitely more frequent than blissed-out hippies.

Last fall, in 2014, the going rate per pound being paid to trimmers was \$150. Better operations were paying \$175 or \$200 and a few stand-out jobs offered \$250. The lowest rate I heard quoted was \$114 per pound. The rate has been falling steadily every year for many years. In 2006, when I first visited a trim scene, the standard rate was \$250. This decline has tracked the decline in prices paid to growers by dealers. In 2006, a grower could get \$3000 for a pound. In 2014, offers of less than \$1500 were not uncommon. Bigger growers, with trimming partly automated, were willing to take \$900 per pound. With more and more people growing each year, prices will continue to fall and who knows what the floor is.

Some people would say that, even with declining pay over the years, trimmers have it great: Isn’t “the trim scene” a big fun party where people can smoke as much bud as they want and party it up with hotties from Down Under? Aren’t 20-somethings resilient enough to live on the edge for a couple months and come out none the worse? Since the money is in cash, under-the-table, isn’t it still good pay? All these things are factual to some degree, but only in a small and shrinking portion of the industry. The huge, cartel-run trespass grows in the National Forest certainly don’t fit this bill, and they produce a greater percentage of what ends up on the street. As the industry continues to expand, the larger operators will lead the way so we can expect lower pay and fewer parties as time goes on. Eventually, of course, trimming will become an above-ground job, with citizens earning minimum wage and immigrants getting less, and on-the-clock enjoyment of the product prohibited.

What are the answers?

So, given that the marijuana industry is dominated by polluters and whip-crackers, should we be taking advantage of legalization to impose standards, perhaps awarding the most sustainable farmers and best employers with designations such as “Organic” and “Fair Trade?” Certainly, people are free to do so, and I expect that we will see some of that. But we should look at the lessons learned from these certifications already. When the USDA stepped in to define

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“Organic,” Big Ag was there to make sure they got what they wanted and they have been actively working to erode the standards ever since. “Organic” doesn’t say a word about water use and allows plastic up the wazoo. “Fair Trade” is another term that sounds great, but again, who is defining the standard?

Farmer’s Markets and CSAs (Community-Supported Agriculture) are two ways that consumers can have direct relationships with farmers when it comes to fresh produce. Because these are personal relationships between people who can look each other in the eye, they are much less susceptible to obfuscation or misrepresentation. This is where conscientious consumers of marijuana should look for inspiration. “Going local” will make that easiest. At the very least, consumers can choose a dealer or budista who can build these farm-direct relationships on their behalf. Above all, the famous words of E. F. Schumacher should be the guiding inspiration: “Small is Beautiful.”

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