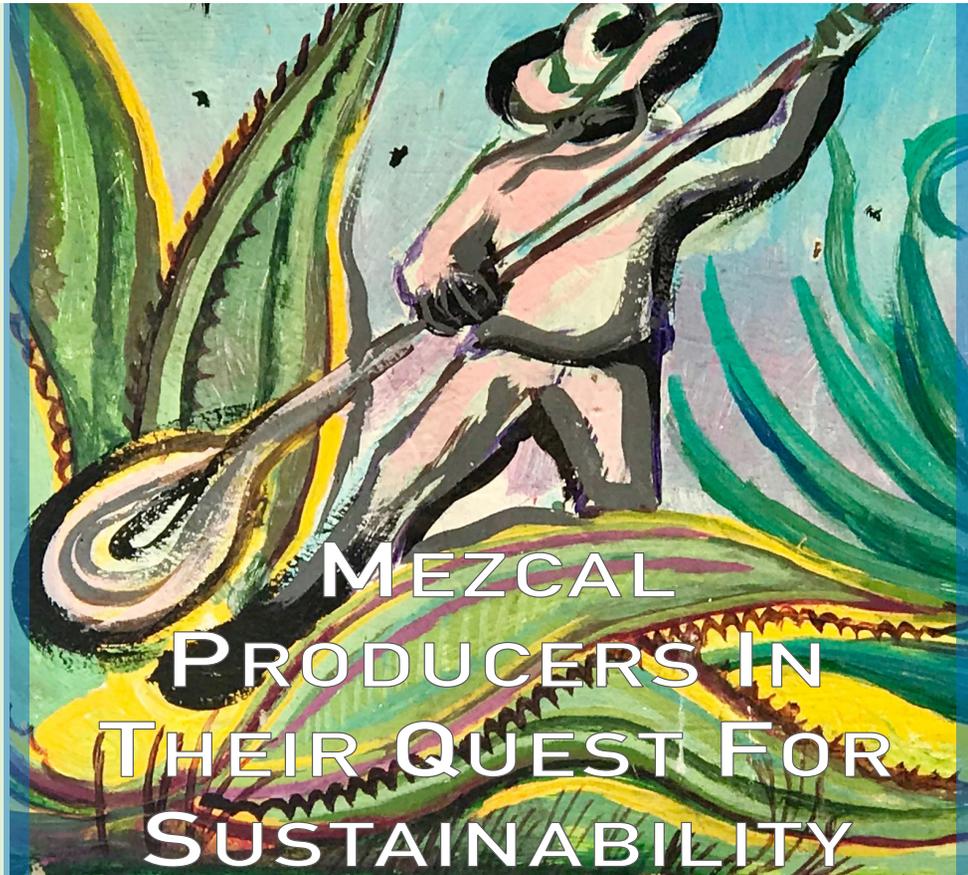


AGAVE SPECTATOR

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COOPERATION VERSUS DOMINATION IN THE QUEST FOR SUSTAINABILITY BY MEZCAL PRODUCERS. IN THEIR WORDS

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“Hand crafted mezcal production has the potential of being totally sustainable, but this is far from the situation today.”

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*Carlos Moreno founder
Koch El Mezcal*

“Hand crafted mezcal production has the potential of being totally sustainable, but this is far from the situation today,” says Carlos Moreno who has implemented extensive sustainability initiatives as the founder of Koch El Mezcal. “There are five main issues that must be addressed immediately,” continues Carlos who is based in the state of Oaxaca home to 90% of mezcal’s production, “and these are deforestation, biodiversity, byproducts, wild agave depletion and chemical farming.”

The global surge in mezcal consumption has ignited mezcal production to record levels doubling in volume between 2016 and 2019 to over 7 million liters, according to SADER, Mexico’s Ministry of Agriculture, with more than 700 certified mezcal brands distilling over 60 different agave varieties, under three distinct production categories, within over 950 municipalities spread across the nine states officially sanctioned for mezcal production.

WILD AGAVE DEPLETION

“Every producer can agree that the supply of agaves demands our immediate attention,” says Francisco J. Perez founder of Banhez Mezcal and the Oaxacan Council of Maguey and Mezcal. “We must raise awareness about the exploitation of wild agaves species, some taking 15 to 20 years to mature, and ensure a sustainable program of replacement and re-planting of these agave species in the places where they were extracted,” continues Francisco, “which is what we have implemented at Banhez” where a cooperative of families semi-cultivates agaves naturally and organically in order to retain indigenous species that define the local ecosystem.



Seed Germinated Agaves – Koch El Mezcal



Cultivation of Coyote Agaves - Eleazar Brena

“Ultimately sustainability in mezcal is about cooperating with nature, but not trying to dominate nature”

“Ultimately sustainability in mezcal is about cooperating with nature, but not trying to dominate nature,” comments Flor Mijangos and her husband Jorge, founders of Yuu Baal Mezcal, “so we simply accept what nature is willing to give us and we accomplish this by working with our thirty families in our three communities to replant wild agave species from seed, including Madrecuixe, Tepeztate, Tobalá, Jabali and Barril.”

According to data released by the Regulatory Council for Mezcal (CRM) over 85% of all mezcal is produced from Espadín agaves, while demand for 62 other varieties of agaves has increased to over 1 million liters, nearly tripling in volume over 4 years.

“The explosive demand for mezcal, and particularly from marketing brands seeking wild agaves, is applying too much pressure on these populations,” explains Eleazar Brena, Maestro Mezcalero for Noble Coyote and Admirable Mezcals, “so today we see a shortage as our hillsides have been depleted of these wild agaves without a plan to replace them.” Eleazar has undertaken “the cultivation of Espadín and wild species such as Tobalá, Coyote and Tepeztate, germinated in seedbed nurseries before being returned to their natural habitat” where Eleazar continues to manage them for a few years, providing organic nutrients without the use of chemicals.

“Once people understood that sustainability is also about job preservation, our project of replanting over one million agaves became a reality,” explains leading Durango based producer Mezcal Origen Raíz del Espíritu’s Daniel Fuentes Rojas, where Cenizo is the predominant agave used for mezcal production, “so together with our farmers, from seed to germination, we are now ready to transplant these agaves back into their natural habitat,” added Daniel who also studied sustainable farming in Oaxaca.

Understanding the impact of harvesting wild agaves led fifth generation Mezcalero Rolando Cortes, founder of Agave de Cortes and El Jolgorio mezcals, to launch Nuestra Soledad “produced solely with cultivated Espadín agaves from different communities in order to build an appreciation for how terroir alone can deliver remarkably different mezcals from a single agave variety.” Rolando, who ensures at least two agaves are replanted for each one harvested, sees Espadín “as the future of mezcal because it is already the most prominent agave in mezcal and also the most capable of sustainability, and in turn this will relieve pressure on rare and wild agave populations.”

Sustaining endemic agave species, all of which are location specific to their natural ecosystems, is key “to conserving our unique terroirs which are the bed rock of authentic mezcal production,” explains Daniela Santiago founder of Mezcal Masoquista, a brand name she selected to reflect “the combined rewards and difficulties of producing mezcal.” Daniela who cultivates Espadín, Mexicano and Coyote agaves emphasizes the importance of “polyculture to improve soil quality and increase native biodiversity.”

BYPRODUCTS

Beyond economics, the byproducts of mezcal’s success are in the form of ever-growing volumes of liquid and solid waste, according Eleazar, who is also an agronomist and university professor, “because every bottle of mezcal produced generates 10-12 times that volume in highly acidic liquid waste known as vinaza, and approximately 40 pounds of solid waste, known as bagazo, which are too often disposed of in nature resulting in many issues.”



Upcycling vinaza and bagazo into adobe bricks – Ecos mezcal and maestro Don José Santiago

An estimated 76 million liters of vinaza are generated annually, according to a study co-authored by Luis Alberto Ordaz-Díaz, most of which are unloaded directly into bodies of water, sewage systems, or into the ground without receiving treatment, the study concluded.

The liquid waste vinazas are of particular concern to Ecos Mezcal founder and ceo Emiliano Peralta “because the river pollution generated from mezcal production is alarming and although it is sometimes covered by local laws, it is rarely enforced, and if we don’t do something about it, we will all be left without work, without mezcal and without natural resources.” As a result Emiliano and his Maestro Mezcalero José Santiago, who started Ecos Mezcal on the premise of zero waste and 100% eco-friendly, are upcycling vinazas and agave fibers into adobe bricks, “we combine them with earth and then let the sun complete the process.”

“When I am asked, what does sustainability mean to me? It means trash doesn’t exist,” adds Carlos Moreno, “because every byproduct of producing mezcal can be upcycled.” Carlos explains how he uses depleted agave fibers, bagazo, for compost, and how vinazas are recycled into clean water, “I even used our old wooden fermentation tanks to build a fish farm.” Koch recycles vinazas with a bio-digester which, according to Carlos, “first neutralizes the acidity naturally, then uses charcoal filters and anaerobic digestion to transform the vinaza into clean water which is passed through a fish tank to confirm it is safe and then returned to the river to breathe life back into the river which is quickly dying.”

Carlos highlights the challenges of local enforcement adding that “here all of the distilleries are built alongside the river, and all of the vinazas are discarded into our rivers which is highly toxic to the river ecosystem so you might ask why don’t the local authorities try to stop this pollution? Simply there is no law against it. And even if there was a law there is no incentive to respect it, because we don’t like change” adding that when Koch El Mezcal began returning clean water into the river, local authorities tried to stop him “they said our actions would put too much pressure on everyone to do the same, to stop contaminating our rivers.”

At Yuu Baal, bagazo fibers are upcycled for compost and animal feed, while also combined with vinaza to produce adobe bricks “that we return to the communities for their use in building houses,” confirmed Flor, “and we also harvest rainwater to run our cooling tanks during distillation.”

Smaller producers such as Aída Ríos of Mezcal Rajabule produced in Sola de Vega, admits that “we can only move as fast as our resources allow to address sustainability issues, and a small production such as ours and hundreds like us do not have any external financial assistance to move faster” but added that recently they began upcycling fiber waste into fuel blocks as a substitute for firewood during distillation.

DEFORESTATION

“The use of firewood for the elaboration of mezcal is another problem to which one must pay attention,” says Francisco Perez, who also founded the Union of Agricultural Producers near San Miguel Ejutla in Oaxaca where Banhez is produced, “and we must make a plan of planting trees for firewood” amidst growing deforestation concerns.

Statistics published by the Center for Studies on Maguey (aka Agave) and Mezcal (CEMMEZ), imply that in a single year up to 30,000 tons of firewood were used for mezcal production which, according to CEMMEZ, has translated into deforestation and loss of biodiversity.

Carlos Moreno quickly points out the compounding problem of high prices for firewood coupled with skyrocketing prices for agaves “where cheap labor and inexpensive land has driven return on investments for planting agave up to 500%, and rather than planting agaves in marginal lands which are suitable to agave farming, people are clearing out entire forests and hills for their agave fields in order to benefit from also selling firewood.” Carlos supports land management that would designate specific zones for planting agaves.

“Deforestation to plant agaves is a real threat to our ecosystem, which is made worse by monoculture practices of a single varietal only to be exacerbated by the growing practice of monoculture from seeds brought in from other regions,” adds Daniela of Mezcal Masoquista who instead practices “polyculture by cultivating agaves organically from locally sourced seeds to promote biodiversity within the species unlike the practice of cultivating from clones which is prevalent in many areas.”



Cultivated Agave Fields At Koch El Mezcal

BIODIVERSITY AND CHEMICAL FARMING

“The biodiversity and genetic diversity achieved from cultivating agave from locally sourced seeds rather than clones is the key to organic farming,” explains Eleazar Brena, “because seed germinated agaves become stronger plants with higher sugar levels, all without the use of chemical pesticides and herbicides.” Monoculture, particularly of Espadín, is an alarming practice according to Eleazar because it “harms the ecosystem by suppressing natural pollinators and depletes nutrients from the soil, which means adding chemical fertilizers.”

Diana Carolina Pinzon Moncada ceo of Pueblo-based Zinacantan Mezcal along with her team oversaw the construction of their production facilities from the ground up in order to ensure completely sustainable organic practices. “This includes a supply of locally sourced seeds,” adds Diana, “as we allow 10% of our agaves to grow a quiete and flower, which supports bat pollination and give us enough seeds to both cultivate and naturally propagate to ensure biodiversity.”

“The agave has a single sexual reproductive cycle in its life,” explains Diana, and all of the sugars the agave has built up over years are expended for this process. “If you cut the quiete you conserve the sugars in the piña, which are the raw material for mezcal production,” continues Diana, “so the temptation is of course to cut quietes and cultivate through hijuelos or

bulbils.” Diana also noted that the strong demand for agave seeds has led to a growing incidence of qurote theft for seeds, “creating another incentive for farmers to cultivate through clones alone.”



Agave Nursery At Zinacantan Mezcal

“Asexual reproduction through hijuelos and bulbils, a feature of many agaves, propagates agaves that lack genetic diversity and will be much more susceptible to diseases and pests because their genetic structure is inferior,” confirms Flor of Yuu Baal noting that a single disease could wipe out entire fields of genetically identical agaves, which has always been a concern in areas where agaves are rarely grown from seed.

“The high price of agave is also driving many unsustainable practices that depress biodiversity while elevating the use of chemicals,” explains Diana of Zinacantan, “with the practice of high-density cultivation and growth acceleration.” Farmers plant agaves in high-density patterns, up to 10 times more plants per acre than found in nature, continues Diana, “this of course yields more agaves, however we have found that these agaves have much lower sugar levels and leave behind the negative impact of chemical fertilizers.”

“We have to speak about organic cultivation because the extensive use of chemicals in agave farming is alarming and is driven by the price of agaves which are sold by the kilo,” says Carlos Moreno, “our agaves are all organically grown to reach around 80 kilos with high sugar content, always without chemicals or accelerants.” By contrast, Carlos explains, “**the chemical agaves get much larger, like 300 kilos, meaning more revenue for the farmer, but the problem here is these huge agaves are high in chemicals and low in sugar. I am certain that in some of these chemically enhanced agaves, we would find levels of toxins that would render them unfit for human consumption.**”

WHERE DO WE GO FROM HERE?

With global mezcal demand projected to double in the next 2-3 years based upon current growth rates, “there is no doubt that the quantity of mezcal producers will increase to meet this demand, including marketing brands that contract with



Composting Bagazo Agave Fibers At Yuu Baal

producers,” says Eleazar Brena, “which will further expand demand for agave farming which will further accelerate the problems we see already today.”

“So then what happens?” ponders Eleazar, “only those farmers with sustainable practices will prevail, meaning that producers who do not have access to planned and sustainable agave sources will disappear or consolidate for lack of access to raw materials.”

“Much is said about sustainability because as producers we understand that our mezcal way of life is ultimately what we seek to sustain,” concludes Flor of Yuu Baal, “and as producers we must recognize this can only be achieved when our land and our natural resources support us because we take care of them.”

“If sustainability is about preserving our way of life, then we must work together to find solutions,” concludes Rolando Cortes who sees the possibility of “self-governance to address sustainability amongst producers, perhaps grouped by production capacity and size. But first we must raise awareness for the importance of taking actions today to reduce our footprint and ensure that our way of life is possible for future generations of mezcal producers.”

“We need to replace these environmental problems with new jobs that solve these environmental problems,” continues Carlos Moreno, “because the biggest issue today is people are afraid of losing sources of income if sustainability practices are put in place.” Conservation investments would “create new jobs and income from the implementation of sustainability initiatives,” concludes Carlos, “and perhaps it will require external studies to motivate authorities to move in this direction.”

“The future of mezcal is in the balance between the forces of conservation and the forces of proliferation,” concludes Eleazar Brena, “is it possible to join these forces for sustainability and the preservation of our mezcal way of life? This is not an option, this is the only way.”