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Israel: Vegan Capital of the World

Kelsey Gross
University of Pennsylvania

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Israel has the largest percentage of vegans per capita in the world – five percent (approximately 400,000 people) as of 2017.[1] For centuries, populations in the Middle East regularly consumed plant-based cuisines with limited consumption of meat beyond elites; however, the recent growth of vegan options now extends far beyond these offerings. Restaurants are increasingly transitioning to completely vegan menus while many Israeli, and particularly Tel Aviv-based startups, continue to experiment with "vegan" versions of animal products, such as vegan cheeses, milks, and meats.[2] Israel is also the test-run center for many international franchises, unveiling new vegan versions of their products. Recent examples include vegan pizza from Domino's and vegan ice cream flavors from Ben & Jerry's.[3]

There is no coincidence that Israel has developed into the world's vegan hub. This paper will show that a combination of economic, cultural, and environmental factors – above all the climate, the high-density kashrut Israeli population, and the country's start-up culture – has made Israel into an ideal laboratory for the development of vegan culture and cuisine. Although the transition to veganism is much more than a purely economic trend, vegan offerings depend heavily on economic conditions. Vegan products succeed in Israel because of country-specific factors, which are relevant both for

understanding Israeli culture but also from a business standpoint, as more companies attempt to venture into the vegan market.

This paper uses a combination of primary and secondary sources to explore how and why Israel has become a prominent center for vegan culture. Primary sources include studies conducted by the U.S. and Israeli governments about Israeli cultural and agricultural practices, and from particular groups focused on researching Israeli and Jewish customs (Wharton School of Business at the University of Pennsylvania, which regularly hosts a Wharton Israel Conference). This paper relies on social media, including news articles and organization websites from Israeli news sources, and vegan advocacy groups to explore Israeli business and cultural trends. International and U.S. government reports provide country-level economic and population statistics. Finally, this paper refers to secondary sources such as reports on the historical context of vegan and vegetarian practices and cultural-culinary ethnographies of both Israel and the surrounding Arab nations to provide a historical context for today's economic market.

This paper contains three parts. Part one provides background information on veganism, kosher dietary habits, and Israeli culture. Part two discusses geographic factors contributing to veganism's growth, including the agricultural and culinary-cultural climate. Part three will discuss Israeli-specific cultural factors that contribute to veganism's success, including the impacts of kosher laws and Tel Aviv's growing start-up culture. This paper concludes that the establishment of a thriving vegan market in Israel is no accident. The convergence of geographic and cultural factors primed Israel to be a vegan hub.

Background

Roughly three quarters of Israelis identify as Jewish, followed by a 18 percent Muslim minority, with Christianity and other religions accounting for the remaining seven percent of the population.[4] With a GDP per capita

of $36,400 in 2017, Israel is one of the most economically successful nations in the region, and fares significantly better than its neighbors in Syria, Jordan, and Egypt, with 2017 per capita GDPs of $2,900, $9,200, and $12,700, respectively.[5] Its main exports are cut diamonds, high-tech equipment, pharmaceuticals, and other service exports.[6] The country is an incubator for science and technology, and boasts the highest research and development spending as a percentage of its GDP in the world.[7] Multiple media sources refer to Israel as a "Start-Up Nation," with the most startups per capita in the world, around one for every 1,400 people.[8] Although it is home to many technological developments, Israel's arid climate and a cultural push for self-sufficiency has made it the home to many agricultural innovations too, and it is the birthplace of drip irrigation.[9] Accordingly, Israel has some of the cheapest produce in the world, but is still heavily reliant on imports for animal meat, including beef and fish.[10]

Three-quarters of Israelis are Jewish, and of these, approximately sixty-three percent keep kosher at home.[11] Although following the kosher dietary laws is common among Jews internationally, *kashrut* is especially significant in Israel, the world's only Jewish-majority country. Kosher dietary practice is guided by the laws of the Old Testament. Interpretation and adherence to these practices may vary between groups, but there are a few rules that are generally held throughout kashrut practice.

Regarding meat, only cattle and game with cloven hooves that chew their cud are permissible for consumption. The pig, which has split hooves and does not chew its cud, is not edible. The Old Testament identifies and prohibits the consumption of certain birds and their eggs, and only fish with fins and scales may be consumed. A ritual slaughterer must kill animals using specific techniques that lead to instantaneous loss of consciousness and death in order to minimize pain.[12] All kosher milk and dairy products must come from kosher animals. Additionally, dairy and meat products may not be cooked together, served together, or eaten at the same time.[13]

The earliest documentation of the concept of vegetarianism and benevolence among all species is around 500 BCE, from Greek philosopher and mathematician Pythagoras and from Siddhartha Gautama (Buddha). Eastern religions such as Buddhism, Hinduism, and Jainism advocate vegetarianism and avoiding causing living creatures pain. The earliest Western vegetarians were the Ephrata Cloister, a Pennsylvanian religious sect. England was home to the first vegetarian society in 1847, and three years later, the American Vegetarian Society followed.

In 1944, a British woodworker, Donald Watson, coined "vegan" to describe vegetarians as those who also abstained from eating dairy or eggs. When a wave of tuberculosis struck 40 percent of the British dairy cows, he used this outbreak to support and spread his movement. Watson and a small group of supporters formed the Vegan Society in 1944 and defined veganism as "the principle of the emancipation of animals from exploitation by man." By the time Watson died in 2005, the vegan community had grown tremendously, with over 250,000 vegans in Britain and two million in the United States.[14]

Within veganism, there are multiple distinctions and levels of observance. A strict vegan lifestyle prohibits the use of any animal products or derivatives, including but also outside of food consumption, such as in clothing and toiletries. Raw veganism, an offshoot of veganism, prohibits individuals from cooking food.[15] Individuals cite multiple reasons for the adoption of vegan diets, including health benefits, environmental factors, and animal rights. Interest in veganism spiked over the past decade, with increasing online searches for the word and multiple public figures announcing their adoptions or support of the diet.[16] For the sake of simplicity and to narrow the focus, this paper will focus on Israeli consumption of vegan products, regardless of the type of veganism, or level of adherence to the vegan lifestyle.

Although both kosher and halal dietary laws emphasize the humane treatment of animals, neither prohibit animal consumption nor have their

followers historically practiced vegetarianism. From a historical context, it would therefore make sense for veganism to thrive in eastern regions with religions that preached vegetarianism, and if not in these areas, then in Great Britain or America, homes of the first Vegan and Vegetarian Societies. Nevertheless, Israel has the highest number of vegans per capita in the world, with five percent of its population identifying as vegan in 2015, compared to the two percent in the United States and the United Kingdom. Veganism has instilled a culture in Israel: Tel Aviv is home to over 400 certified vegan restaurants, Israel was the host of the world's largest vegan festival in 2014 with over 15,000 participants, and the Israel Defense Forces began offering vegan meals and other animal cruelty-free lifestyle options to its troops in 2014.[17] The role of this paper is to identify and explore the additional factors that positioned Israel to become the ideal home for the world's vegan hub.

Geographic Factors

The Middle Eastern environment is generally inhospitable to intensive agriculture, but Israel has nonetheless made unique strides to achieve relative agricultural independence. As of 2011, only 13.7 percent of Israeli land is arable.[18] This is mostly due to water scarcity and the desert climate. Israel, however, has seen agricultural success in comparison to its neighbors, doubling its cultivated land from 408,000 to 1.1 million acres between 1958 and 1998, producing adequate amounts to feed its population, and even exporting some of its agricultural goods, including produce.[19]

Israel's agricultural success stems from the nation's early Zionist inhabitants after 1948. Zionists entering Israel saw farming as a way to spiritually connect with the land, and agriculture became key to the Israeli identity. The Israeli *kibbutzim* formed farming communities, with shared ownership and profits. Similarly, *moshavot* were initial agricultural establishments, which were cooperatives similar to *kibbutzim* but with privately owned plots of land.[20] Israel's Zionist inhabitants inspired a culture

which valued agricultural success, leading to subsequent innovations further improving the country's ability to use their scarce resources effectively.

Importantly, Israel's agricultural success was not only a cultural priority but was a national security necessity. Although Israel and its neighboring countries could benefit immensely from multinational cooperation by sharing of water and other scarce resources, intense political tension makes this unlikely. Water and other natural resources have been at the center of many international disputes in the region. It is probable that early Israelis recognized the political significance of achieving agricultural independence. Israeli Prime Minister David Ben-Gurion pushed Israel to "make the desert bloom," and in 1964 the country built the National Water Carrier (NWC), a series of pipes that bring water from the Sea of Galilee to drier areas, such as the Negev desert. Since then, the NWC has increased annual water output to Negev by 75 percent, and irrigates over 500,000 acres of land, using drip, spray, and buried irrigation systems.[21]

Israel has been home to many agricultural innovations. In addition to being the home of modern drip irrigation technology, it is also home to Netafim, one of the world's leading precision irrigation companies.[22] Various agricultural developments include reservoirs to harvest and store flood water for irrigation, the dilution of salt in desert soil, the plastic sheeting to keep water in the ground around the roots in olive groves, the use of brackish water for irrigation, and renewable energy utilization, such as solar, hydroelectric, geothermal, and wind energy. Through its various innovations, Israel is able to produce 95 percent of its food requirements.[23]

Israel experiences economic success in its agricultural market. In 2017, fresh fruit exports valued $330 million, while citrus fruits alone were $230 million, and fresh vegetable exports were $360 million.[24] Due to its agricultural efficiency, produce and vegetable prices are lower in Israel than they are in other OECD countries.[25] The reality, however, is that the desert climate is still inhospitable to livestock and many fish. Although Israelis have

bred domestic dairy cattle that can resist harsh desert climates, cattle bred for the beef industry face poor resistance to local Israeli diseases, low reproductive rates, feed problems, and loss due to predators or disease.[26] Despite efforts to improve the outlook for the beef industry, due to high costs and obstacles it is more profitable for Israeli farmers to funnel research and land resources into produce and crops. Therefore, the country depends on imports for over 80 percent of its beef and fish consumption, which drives up their prices.[27] In 2018, beef and beef products were its largest imported product group, totaling $548 million at 22.3 percent of all imports.[28] Dairy and meat products cost significantly more in Israel than in Europe, the United States, and other countries with higher average individual salaries.[29]

Relatively high meat prices coupled with low produce prices drives Israelis to purchase less meat and more produce. In 2017, Israel's total beef and veal consumption per capita was 14.5 kg, significantly less than the United States, where the average resident consumed 25.9 kg.[30] According to a 2018 USDA report, "fruits and vegetables remain a staple in the Israeli diet," with supermarkets "dedicating a large portion of their sales area to fruits and vegetables."[31] In fact, Israel has the third highest vegetable and legume consumption in the world.[32] From this perspective, switching to a plant-based vegan diet may not be as large of a change for Israelis as it would be for people of other nationalities, since Israeli diets are highly plant-based to begin with.

Looking past the physical climate to find historical geographic significance, Israel's neighbors and the native Palestinians already relied heavily on plant-based foods, which influenced Israeli culinary habits as the country developed its own culture.[33] This is also largely due to the Zionist attitudes of Israel's initial Jewish settlers. To distance themselves from the diasporic past, Israeli Jews were hesitant to bring cultural remnants of European Jewish groups to their new homes, and instead adopted local Middle Eastern dishes. Many Israeli Jews today consider Arab dishes such as hummus, tahini, *tabbouleh*, and *baba ghanoush* to be Israeli, and consume them frequently.[34]

Consequently, Mediterranean and Middle Eastern cuisines are abundant, while there are considerably less "Ashkenazi" foods like bagels, kugel, and matzo-ball soup in restaurants and in the home.[35]

The Arabic cuisine Israelis adopted has historically been plant-based, and many early Muslims lived vegetarian or semi-vegetarian lifestyles, viewing meat consumption suspiciously. In fact, until recent decades, meat consumption was generally reserved for the elite.[36] As a result, many common Palestinian dishes are based in plant foods and can be prepared without meat; some examples include *mahashi* (stuffed vegetables), *fatteh* (cut up bread served with rice), and stews. Common ingredients include chickpeas, yogurts, dates, and vegetables. Palestinian cuisine is known for its color, using a variety of vegetables and spices.[37] Palestinian cuisine is largely plant-based, partially due to its climate conditions and Islam's religious emphasis on the humane treatment of animals.[38] In fact, vegan activists have recently capitalized on this emphasis by using religious arguments against animal mistreatment to discourage Muslims from consuming animals or animal products altogether.[39] This argument prevails among Jewish communities as well, which this report will touch upon in subsequent sections.

A combination of the physical geography and the land's historical-culinary context predisposed Israelis to adopt plant-based diets. Although they may not have intended to adopt vegan diets, these culinary habits simplified the transition to veganism. A switch to vegan food-purchasing habits may not differ significantly from some Israelis' existing habits. Consequently, Israelis contemplating veganism foresee less of an economic barrier or cultural shift than others.

Cultural Factors

Certain cultural factors unique to Israel also contributed to the country's appeal as a global center for the vegan community; one of these is the country's unique kosher dietary restrictions. Approximately 70 percent of

Israeli Jews keep kosher at least in the home, and since roughly 75 percent of Israelis are Jewish, over half of the population observes kosher dietary rules.[40]

From an economic standpoint, the large population that keeps kosher has a significant impact on the price and availability of meat and dairy products. All pork products are prohibited, for example. Although non-kosher Israelis still consume pork, this is less in Israel than in other countries, with Israeli consumption at 1.6 kilograms per capita compared to the OECD total of 23.2 kilograms.[41]

The more complex issues revolve around beef, sheep, lamb, goat, and veal consumption. Although these animals are permissible, a ritual slaughterer must kill these animals in accordance with Jewish law, which substantially increases production costs.[42] Additionally, the 1983 Kosher Fraud Law mandates that the Israeli Chief Rabbinate must certify all foods labeled as kosher, and this legal requirement imposes additional fees.[43] It is legal to sell and produce non-kosher meat in Israel, but the market for these products is automatically less than half of the general population. These factors, combined with the challenge of raising cattle in Israel's inhospitable environment, make the meat market a relatively unappealing sector for Israeli farmers to enter.

Foreign entry into the market may drive competition and increase prices, but foreign entrants face their own barriers. The 1994 Meat and Its Products Law makes it illegal to import non-kosher meats. It also requires that all imports labeled as kosher receive the Chief Rabbinate's approval, even if international rabbis already certified them.[44] This complex "double supervision" process also drives up the prices of imported meat. The economic impacts of this law even extend outside of the meat industry to the dairy industry as well, raising hard cheese prices by 35 percent. Consequently, three companies share a monopoly over the dairy industry, while two share a monopoly over meat.[45] These factors increase the barriers to entry for meat and dairy producers, and ultimately stem from Israel's unique position as the

world's only Jewish — and only kosher — nation.

In contrast, *kashrut* law significantly benefits the outlook for vegan products. Regardless of price, kosher dietary restrictions surrounding meat and dairy products makes the consumption of certain Western food staples simply impossible. Some examples include cheeseburgers, bacon, and pepperoni pizza, which mix dairy and meat. For the kosher population, the introduction of vegan meat and cheese does not merely pose a cruelty-free alternative, but rather a way for consumers to experience these foods for the first time.

Contextual and economic evidence provides further insurance that there would be interest for vegan meat and dairy alternatives. American and European products and trends tend to be popular in Israel, denoting luxury and meeting a cultural desire for separation from Middle Eastern neighbors.[46] The U.S. Department of Agriculture listed "milk alternatives" and "products with higher levels of protein" as top agricultural growth products, and "vegan" as one of the top agricultural trends for 2017.[47] Similarly, in its Global Agricultural Information Network report on Israel for 2018, the USDA listed "vegan and vegetarian products" as products "not present in significant quantities, but which have good sales potential." They found a 17.7 percent increase in vegan and vegetarian product sales in 2017, exceeding 2016 sales by $9.7 million.[48]

Activists also use religious arguments to support veganism in the Jewish community. The Old Testament has multiple guidelines regarding ethical treatment and respect for animals. One example is Proverbs 12:10, which states "the righteous person regards the life of his beast."[49] The Bible sets additional guidelines governing animal rights, instructing Jews to avoid *tzar baalei chayim*, causing pain to any living creatures. Within these rules are instructions to avoid "severing animals" limbs and eating them, killing a cow and her calf on the same day, muzzling an animal threshing corn, and harnessing an ox and a donkey together." The Bible does permit meat

consumption, and the consumption of various animal meats and products are part of multiple Jewish traditions. The Bible, however, places an emphasis on only harming animals to fulfill essential human needs, and on treating all living creatures with compassion and dignity.[50]

Guidelines surrounding slaughter for human consumption are intended to minimize animals' pain and distress, yet animal rights activists recently criticized certain methods of kosher slaughter and labeled them as barbaric. In 2017, PETA, in partnership with two Israeli organizations, Anonymous for Animal Rights and Let the Animals Live, released an eyewitness investigation video. They documented how multiple South American kosher slaughterhouses used the "shackle and hoist" practice, in which workers hooked cows by the nose with a sharp tool, cut their throats, and then hoisted them by one leg along a processing line, even if they still demonstrated signs of consciousness. Israeli officials responded by setting a deadline for all kosher slaughterhouses to replace "shackle and hoist" systems with rotating restraint-pens by June 1, 2018.[51]

This investigation, in addition to other recent investigations of the meat and dairy industries, spread widely throughout Israeli media and prompted many Israelis to reconsider the ethical sourcing of their food. Consequently, members of the Jewish community recently started organizations aimed at increasing the awareness of ethical issues surrounding food sourcing and consumption. One example is Hai Bari, an organization which provides labels to Israeli products that follow strict animal welfare standards.[52] In 2016, Dr. Aaron Gross founded the Jewish Initiative for Animals, an international corporation with the goal of helping Jewish communities align food choices with the Jewish value of compassion for animals.[53] In 2012 Israelis founded 269 Life, which is an animal rights organization, and opened Israel's first factory farm animal sanctuary. Vegan-Friendly, another Israeli vegan activist organization, hosts the world's largest annual vegan festival, which saw over 10,000 attendees in 2014.[54] The abundance of kosher meat

in Israel contributed to the controversy over the ethical, religious, and moral implications of meat and dairy consumption, which is causing Israelis to omit meat altogether.

One example of a business capitalizing on "vegan and kosher" market opportunities is an American company, Impossible Foods. The start-up recently debuted their Impossible Burger, a meatless patty made to mimic the texture and taste of normal burgers using wheat and potato protein, coconut oil, and a protein called "heme" that mimics the "bleeding" of a real burger. The burger has seen success in the American market, including the Jewish-American market, after the Orthodox Union (a major American kosher certification agency) certified it as kosher in 2018.[55] Not only is the vegan meat market growing in Israel, but it is also growing among American Jews, who often serve as cultural trend-setters for Israelis.

In fact, Israel already has a well-established start-up culture, making the country the perfect breeding ground for innovators seeking to take advantage of this market's economic opportunity. Experts on Israeli business credit this to technology and culture. At the 2018 Wharton Israel Conference, Ambassador Dani Dayan, the consul general of Israel in New York and an Israeli-Argentine entrepreneur, spoke of a culture in which large business deals, multiple start-ups, and acquisitions worth hundreds of millions of U.S. dollars are commonplace. He accredits Israel's country's start-up success not only to great minds and innovative discoveries, but to a culture with a strong entrepreneurial spirit. "I think that Israeli men and women really dream of being the next Bill Gates or to found the next Google or Microsoft," he explained.[56]

Israel is a nation that prides itself on solving problems with business solutions. This started with drip irrigation for water scarcity, and has continued over the past decades with automated manufacturing, GPS navigation, and automated driver-assistance systems.[57] The rise of Israeli venture capitalism in the 1990s helped individuals access resources needed to

turn their visions into reality. Although the Middle East could greatly benefit from regional cooperation regarding research, business, and development, political tensions have fostered a competitive attitude among Israelis to achieve prosperity independent of their neighbors. These forces converge to create a cultural drive for technology and development and lead to significant innovations that impact Israeli's everyday lives.[58]

Agricultural sustainability, environmental conservation, and ethical animal treatment are not exceptions to Israel'sinnovative spirit. In tackling these issues, Israel hosts multiple organizations that develop technology to minimize the inhumane treatment of animals The Israel Forum for Sustainable Nutrition is an organization of scientists and health professionals that aims to "establish a national sustainable food system and food security for all Israelis, now and in the future."[59] It hosts an annual conference fostering discussions on food related issues and solutions, drawing hundreds of guests from academic, governmental, industry, and business sectors.[60] Academic institutions also prioritize agricultural and food innovation: the Tel Aviv University's School of Plant Sciences and Food Security and Institute for Cereal Crops Improvement have multiple initiatives aimed at sustainability, production, and agricultural innovation. They recently partnered with the Israeli start-up NRGene to develop a wild emmer wheat genome sequence that improves wheat sustainability.[61]

One significant innovation combining science, ethics, and agriculture is "clean meat" — meat grown from in-vitro animal cell cultures. Whether this can be kosher is a controversial and hotly debated issue beyond the scope of this paper. It is undeniable, however, that Israel is the home of the race to develop this technology. Four Israeli start-ups are working on implementing this in different aspects of the meat industry, from chicken to barbeque beef.[62] The Modern Agriculture Foundation, an Israeli accelerator devoted to meat alternatives, collaborates with both Tel Aviv University researchers and start-up companies to support advances in the field.[63]

Although "clean meat" is still in development and has not yet penetrated the market, Israelis are primed to be an accepting market for the product when it arrives. *Kashrut* laws make regular meat consumption complex and costly, and ethical challenges regarding the kosher meat and dairy industry have prompted Israelis to switch to vegan diets. Consequently, the Israeli market for vegan products and restaurants is significantly growing, as are product offerings and opportunities. Moreover, a combination of cultural, political, and economic factors transforms Israel into a welcoming environment for companies seeking to develop new alternatives to meat and dairy, or even to restauranteurs simply looking to adopt plant-based menus.

Conclusion

In most countries, as income rises, so do meat consumption rates. Urbanization, industrialization, and globalization over the past century contributed to the unprecedented growth of the world's livestock sector via improved efficiency, storage and transportation, and is reinforced by the global competition that places downward pressure on prices.[64] It would make sense, therefore, for Israel to have high rates of meat consumption, as it is a relatively wealthy nation in the Middle East The recent rise of the vegan movement, however, contradicts this historical trend.

Israelis are well-off, but they are also educated and informed. Israel reported a mean of 13 years of schooling and ranked 22nd in the United Nation's Education Index in 2017, and reported 64 percent of its "tertiary-school aged population" enrolled in 2016.[65] The DHL Global Connectedness Index, which ranks globalization based on flows of trade, information, and people, ranked Israel as number 14 out of 169 in 2019.[66] Israeli consumers are likely more conscious of the ethical, environmental, and health issues related to their purchasing decisions, which explains their turn towards veganism.

As this report shows, the vegan movement is prominent in Israel and is only expected to grow. Conditions unique to Israel lead to a very positive

outlook for the vegan market. However, and perhaps more importantly, Israel's vegan movement leads to an improved outlook for the world. As more individuals choose plant-based and vegan offerings, these choices lighten the industrial burden on the environment and improve animal welfare. The Israeli government would benefit from promoting the development of plant-based consumption opportunities. As the vegan market grows, Israel may serve as an international role model for other nations attempting to encourage similar consumption trends.

Kelsey Gross graduated from the School of Nursing in May 2019 and will graduate from Wharton in December. She is from Rockville, Md. and is not vegan because her favorite food group is cheese.

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