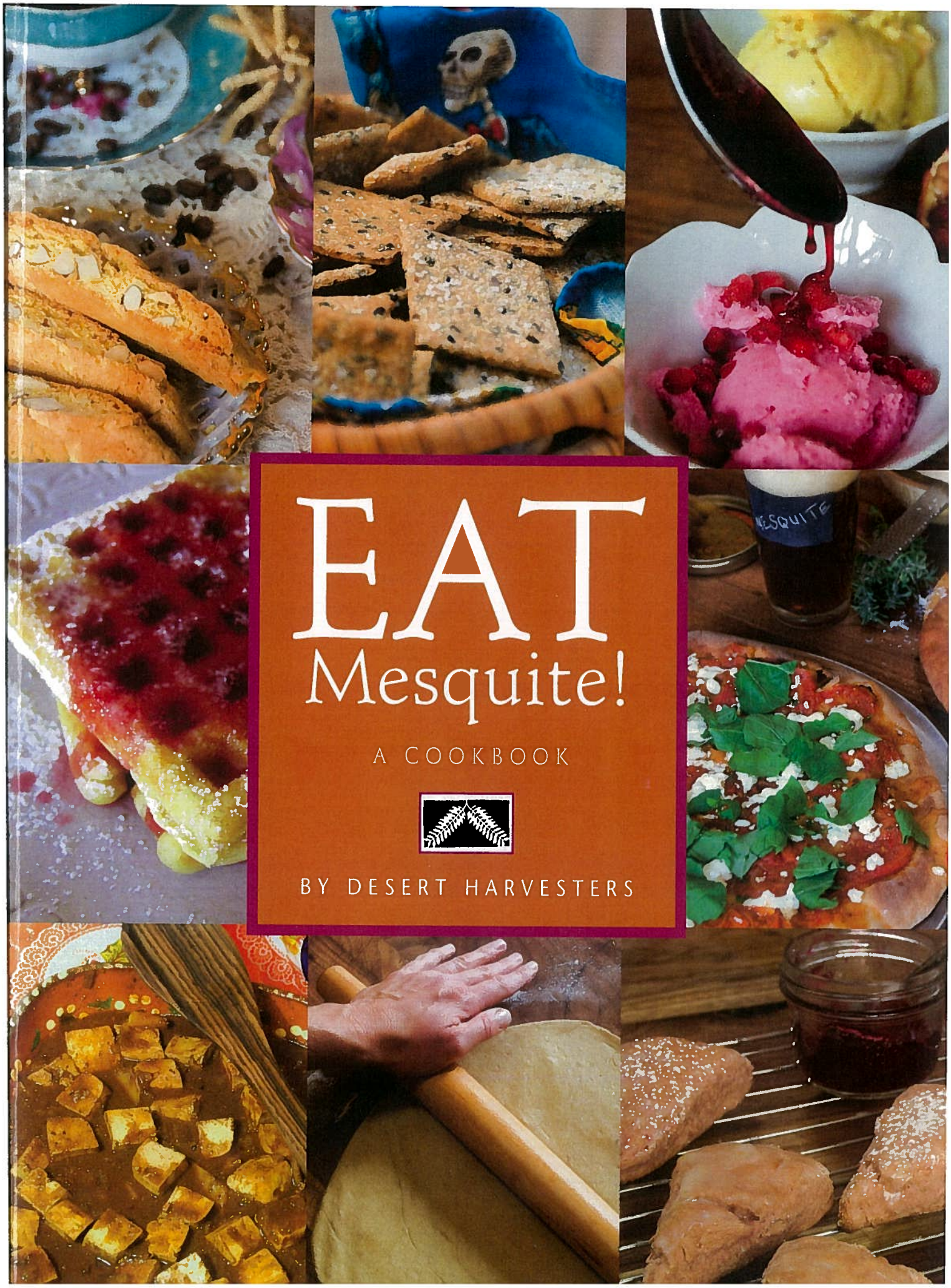
EAT
Mesquite!
A COOKBOOK
BY DESERT HARVESTERS

Richard,
Thank you for all your pioneering work with mesquite. You lead the way!

EAT Mesquite!

A COOKBOOK

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TUCSON, ARIZONA

Mesquite: Food for the World

by Richard Felger and Neil Logan

World hunger can be addressed by developing mesquite as an aridland crop. Mesquite offers agricultural independence for arid and semiarid regions and can be the world's first major new food crop since soy.

Mesquites are hardwood, nitrogen-fixing members of the legume family in a group of species of the genus *Prosopis*, native to arid regions of the Americas. Six species from North America known as mesquite, and about two dozen in South America often called algarrobo, are significant. Some of these species are now naturalized in distant parts of the world.

The roots harbor nitrogen-fixing bacteria and powerful fungal allies enabling *Prosopis* to grow in harsh environments like lava in Hawaii or the saline, hyper-arid coastal deserts of Peru. The pods are non-toxic, generally non-allergenic, gluten and soy free, high fiber and protein-rich food. The pods do not split on ripening, a necessary feature for harvesting. The usual method of preparation involves grinding the pods to produce flour. The bulk of the pod, the pulp (mesocarp) is rich in calories/carbohydrates with a balanced amino acid profile. Within the mesocarp each pod contains hard, protein-rich seeds encased in a tough, leathery endocarp. There is much variation in pod size and taste—some have an applelike flavor and others contain important phyto-nutrients like the anthocyanin pigments in blueberries. The husk (exocarp) and endocarp are not digestible, but can add dietary fiber to the flour. By-products of pod processing can be feedstock for mycoculture and aquaculture systems, thereby increasing the protein output through biological conversion. Other products include honey, ethyl alcohol from the pods and bio-energy from the wood.

Tropical species such as *P. pallida*, native in Peru and naturalized in Hawaii, can produce three or more crops of pods per year. Others, in deserts and aridlands at higher latitudes, such as *P. velutina* in Arizona, tend to produce one large crop in early summer and additional pods until fall.

The mesquites and algarrobos in North and South America served native peoples, agriculturalists as well as hunter/gatherers, as part of everyday life. People knew of trees or groves with sweeter pods and superior yields. The sweet pods provided nutritional foundation for civilizations in the Americas thousands of years before maize (corn) was developed. The wood is a high-quality, clean-burning fuel, preferred for cooking and widely used for charcoal, construction, and numerous other products. The gum and black sap have been widely used for medicine and dye.

People went out to mesquite groves to harvest the pods in early summer—a time of plenty and for socializing. The pods were variously dried and toasted, stored or not, pounded in a bedrock or wooden mortar with a large, wooden pestle, and the flour sorted by winnowing. The flour could be consumed as an atole (porridge), made into tortillas or cakes, or fermented into alcoholic beverages called *aloja*. The flour is highly hygroscopic and becomes a hard mass when exposed to humid air. Mesquite honey has become economically important since introduction of honeybees from the Old World. Kiawe white honey from *Prosopis pallida* in Hawaii is considered one of the finest and most expensive gourmet honeys in the world. Currently, countries in the South American "Chaco" are developing *Prosopis* to produce

organic ethyl alcohol to extract and preserve herbal medicines to create medicinal programs and alleviate costly importations.

Most of the hot arid zones of the world are beset with food shortages and poverty. Increasing drought and human population portends devastating food shortages, famine, and political instability. Modern food production in arid regions is largely based on systems imported from more humid regions. We propose mesquite as a world food crop to fit the environment. We do not approve of changing the environment to fit the crop.

Field tests of different mesquites are underway in various regions of the world. The agricultural potential rivals that of the major modern crops. High-yielding, pest-resistant, flavorful candidates exist in test plots and remnant forests. Studies indicate annual pod yields of two to four tons per hectare in the colder-tolerant species like *P. velutina* from the northern hemisphere, or *P. alba* in the southern hemisphere, while the tropical species *P. pallida* may yield up to 10 tons per hectare. Mesocarp-flour yields are in the range of one to five tons per hectare per year depending on the species and environment. Centuries-old trees in South America, Hawaii, and the Southwestern U.S. are still yielding large quantities of pods annually. *Prosopis pallida* established in Hawaii (native to coastal Peru) may sequester as much as 1.2 to 8.94 tons/hectare/year carbon, the range based on soil type.

If total available food value of the *Prosopis* tree is used, depending on the species and environment, one hectare of land may provide food calories for four to 44 people annually. At these rates only .5% of the available terrestrial landmass of the planet could provide calories for 4.5 billion people.

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