

A group of about ten people are gathered around a long, raised garden bed in a dry, arid landscape. The garden bed is made of wooden planks and is filled with dark soil. Some people are standing and talking, while others are working on the bed. In the background, there are bare trees and a few houses under a clear sky. The overall scene suggests a community gardening project in a hot, dry climate.

Affordable Gardening in Arid Climates

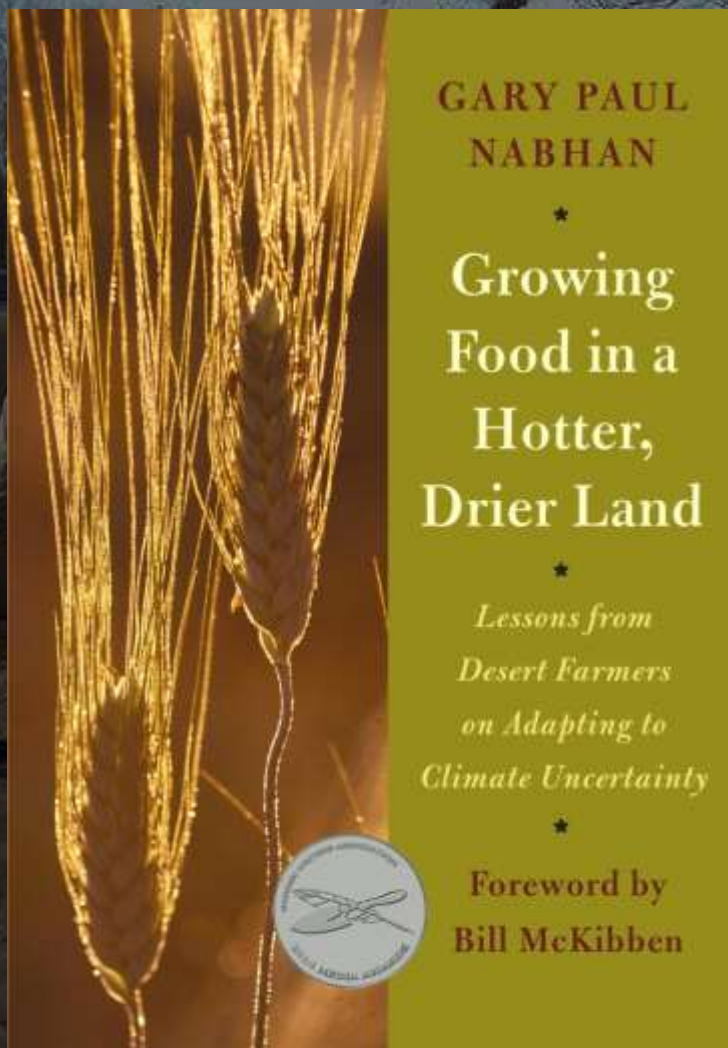
Jesse Davenport
AZ Health Zone Annual Conference
April 4, 2018

TODAY

1. Introductions – personal connection
2. Framing – affordable & sustainable
3. Approach – bio-/eco-/ethno-mimicry
4. Techniques - we'll start with fredges
5. Q&A
6. Apply to a garden activity (if time)

Introductions

- 📍 Your Name
- 📍 Organization
- 📍 Area of AZ/County you work in
- 📍 How are you personally connected to growing food?



**Climate uncertainty
addresses both
affordability &
sustainability**

Affordability - History

- 📍 Homesteads, victory gardens
- 📍 Farming as an occupation
- 📍 Racialized food systems in US

Sustainability – People & Place

- 📍 Us & our target audience
- 📍 Southwest, colonized land
- 📍 Homes, schools, & communities
- 📍 Monty Don

Time-Tried Strategies in Deserts

- 📍 Sunlight abundance, deflection
 - 📍 Water, energy needs
 - 📍 Clustered, recycled
 - 📍 Cooperation, diversity
 - 📍 Stripped-down
 - 📍 Celebration
-

Biomimicry



Eco-mimicry



4. Take the smaller pruned-off branches and weave 4- to 6-foot long segments horizontally in between the upright (living) stakes until they create a sieve or webwork of materials 3 feet high from the ground.
5. Wait (and if necessary, hand-water) until late March, or at least until the live stakes root and leaf out as actively growing saplings.



These cottonwood stands were eco-mimicked by Sonoran farmers to maximize the benefits from their living fencerows or fredges

Ethno-mimicry



Inspiration, not duplication

1. Native food species
2. Organisms that grow together
3. Edible landscapes

Fredges

SEEKING INSPIRATION AND SOLUTIONS

ated in microclimates where they can
to the sun.²¹

recent tourist resort developments
forating more wells at Sora, leading to
petition for fresh water, and more
puddles of brackish tailwaters.²² Some
has outlived many other threats
of years of sustaining a rich, water-
and my hope is that its Berber and
unities have the resolve and the
their resilience once again.

se, desert oasis food forests are as long
the Old World, but over the last
ve been developed in the Americas
Jesuit, Dominican, and Franciscan
e from Europe to colonize Mexico
ght desert-adapted Old World crop
es of Baja California. Of the 21 per
tially introduced to that desert par
74, nearly all of them have perished
he missionaries mimicked the
remembered from their travels in
and in the Canary Islands.²³ In
lated the classic model of oasis
developed in the Middle East
then transplanted and refined
ing climates they encountered



Rain gardens can benefit if you locate brush weirs upstream to slow runoff velocity and force the deposition of nutrient-rich

a hedgerow; across the pond from the Brits, the term is usually reserved for some ornamental plants up against the wall of a house or garage in a suburban

the rest of its leaves from being with the... is this... another advantage in the United States, since every sub-blooded American male already knows how to "band for the fledge" when it's time to get something on rail



Fredges, shelterbelts, and windbreaks are essential to water conservation and crop production in windswept Tajikistan.

SEEKING INSPIRATION AND SOLUTIONS



A living hedgerow or fledge protects field edges and captures nutrient-rich organic debris from upstream for soil building and enhancement in eastern Sonora, Mexico.

but are still being constructed today.* Similar fredges, once commonplace north of the border in Arizona, have virtually vanished from these agrarian landscapes, thus ensuring a great vulnerability in the face of

GROWING FOOD IN A HOTTER, DRIER LAND



This living hedgerow or fledge not only protects field soil banks from erosion during catastrophic storms, but captures nutrients to regenerate the field's fertility and productivity.

they are only now beginning to assess how such human-tended cur-

Rain & waffle gardens

Caleb Weaver
in garden of
anniversary,
looking for the
illy collected
as at a spot
rlooked, for
yet, when I
realized that
ver from our
also capture
a small wa-
or gardens.
catchment-
t we could
rainfall and
he planted
ould still be
ll, I selected
long served



A rain garden designed as a "waffle garden" slows the flow of water and nutrients to grow perennial edible crops and medici-



Buried clay pot irrigation – Ollas





...spread through ethno-mimicry throughout

Other micro-irrigation strategies



- Wick irrigation
- Deep pipe
- Perforated rain pipe

Always need micro-leveling and mulching

Nurse trees & plant guilds



student Humberto Suzan, we once gathered a year and a half ago



Mesquite functions as a protective nurse tree for herbs at Rancho el Peñasco Eco-Lodge in Sonora, Mexico.



...to seedling survival.



Boundary layers

brunt of heat stress. Let's see what has worked for them that they
adapted, refined, or used analogously in your particular foodscape.



A shade-cloth-covered Southwestern-style ramada allows vegetable production throughout the summer at Tucson Village

BREAKING THE FEVER



Desert permaculturist Brad Lancaster uses the vines of Mexican creeper or coral vine (Antigonon leptopus) as a living boundary layer



Permaculturist Greg Peterson shows a tank



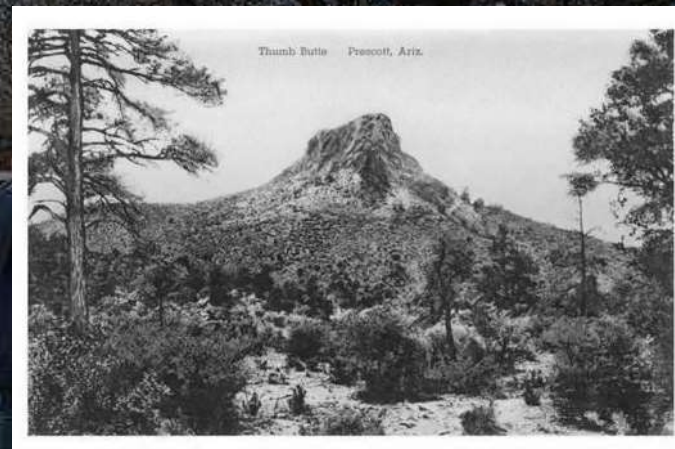
Moisture-holding capacity



Close-up of flood-washed organic detritus to be composted for soil moisture enhancement in rain gardens.

There's way more!!!

- 📍 Fruit & nut tree guildes
- 📍 Terracing and edging
- 📍 Intercropping
- 📍 Pollinators



Questions?

Images are for educational purposes only. Most are from *Growing Food in a Hotter, Drier Land* by Gary Nabhan, find out more by visiting <https://www.garynabhan.com/books/>

Application to SNAP-Ed

- 📍 **Activity: Sketch a garden you're working on, draw out how you might incorporate some of these techniques**
- 📍 **If time, share with a partner**

A group of about ten people are standing in a field, looking towards a wooden frame structure in the background. The scene is outdoors with trees and a clear sky. The text 'Thank you!' is overlaid in large white letters.

Thank you!

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