



The Virtual Gardener—Book Review: Mini Farming—Self-Sufficiency on ¼ Acre

A few days ago I received a catalogue in the mail from a bookseller. As I thumbed through it, one title caught my attention: *Mini Farming—Self-Sufficiency on ¼ Acre* by [Brett Markham](#). The short description of the book in the catalogue intrigued me so I checked the online catalogue for the Cochise County library system, found a copy available in Sierra Vista (call number 635.048 MAR), and checked it out.

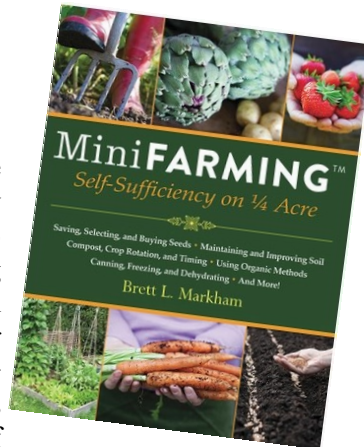
Published by Skyhorse Publishing, NY, NY in 2010 (ISBN 978-1-60239-984-6), the book is a basic gardening manual filled with the distilled wisdom of an experienced third-generation New England gardener. The author, Brett Markham, like Mel Bartholomew of *Square-Foot Gardening* fame, is an engineer as well as a gardener, and he takes an engineer’s approach to gardening. The theme of his book is how to create a home garden that will completely supply the annual vegetable needs of an entire family in an area less than the size of a quarter-acre city lot.

According to the author, the US Department of Agriculture estimates a little over 450 pounds of vegetables per

person per year are required for a healthy diet. Using the raised-bed, intensive gardening techniques described in the book, the author shows how the 1,350+ pounds of vegetables needed for a family of three can be produced cost effectively in only 700 square feet of gardening space.

One of the objections often raised about home gardening is that it is too expensive. Many say it’s cheaper to buy your produce at the store. Markham agrees that the way most people garden is more expensive, but that’s because most people use wasteful techniques. They buy expensive transplants instead of growing from seed; they use expensive fertilizers and amendments; they spray their gardens with expensive (and harmful) pesticides; and they waste water. He shows that by growing open-pollinated vegetables from seed, saving seeds to plant next year, using homemade compost for fertilizer, planting densely,

(Continued on Page 2)



Inside this issue:

August Reminders	2
Ask a Master Gardener	2
Cuttings 'N' Clippings	3
Tools of Cactus Propagation	3
Speaking of Cacti ...	3
The Joy of Bird Gardening	4
Ace Hardware coupon	4
At a Glance Box	5
Arizona Milkweed	5



COLLEGE OF AGRICULTURE
AND LIFE SCIENCES
COOPERATIVE EXTENSION
Cochise County

www.cals.arizona.edu/cochise/mg/

1140 N. Colombo, Sierra Vista, AZ 85635
(520) 458-8278, Ext. 2141

450 S. Haskell, Willcox, AZ 85643
(520) 384-3594

(Continued from page 1)

pairing compatible plants together, and watering wisely a gardener can turn the cost-benefit equation around.

Whether you are interested in becoming totally self-sufficient in supplying vegetables for your family or, like me, are only interested in growing small quantities of your favorite vegetables, this book has lots to offer you. It contains 14 chapters devoted strictly to gardening topics and 7 more—not covered in this review—discussing such additional topics as raising chickens, constructing useful tools, and preserving fruits and vegetables. (You can find a sneak peek of the book on [Amazon](#)).

The author's approach is eclectic. He has borrowed freely from the ideas of others: Jeavons ([How to Grow More Vegetables](#)), Bartholomew ([Square Foot Gardening](#)), Coleman ([Four Season Harvest](#)), and many more. In each case he has tested the techniques recommended by others, evaluated the results he obtained using them, and accepted, rejected, or modified them based on his own experiences.

Some of the most valuable features of the book are the many summary tables displaying collections of useful data on many topics. For example there is a table listing the characteristics of common cover crops, when to plant and harvest them, and their nitrogen yields. Another table lists the botanical families of common vegetables, an important factor in planning crop rotation schemes. A table showing the frost hardiness of common vegetables provides useful information for planning fall gardens. And a table showing the lead times to start vegetables from seed indoors and when to

transplant them outside helps the gardener get an early start in the spring. These are just a sample of the data found in the book. Although all of this information is available elsewhere, it is widely scattered and collecting it for yourself takes considerable effort.

In addition to the data tables, the book contains much practical advice from the author. Here are a couple of examples:

Make your raised beds four feet wide except in the case of those used for trellised crops that must be reached from both sides. In this case the bed should be narrower to facilitate harvesting without stepping into the bed. When starting seedlings indoors under artificial light, use shop light fixtures fitted with one fluorescent warm light tube and one fluorescent cool light tube to get a broader spectrum of light. While open-pollinated crops are the most economical to grow in the long run,

there are some crops that are best grown from hybrid seed because of their vastly superior vigor or resistance to pests and disease. Corn is one example. This is only a small sample of what you will find in the book.

Although the book is packed with valuable and useful information, the reader is cautioned that the author's recommendations are based on his experiences gardening in New Hampshire and Massachusetts. All gardening, like all politics, is local. Techniques that work well in New England will not always work well in the high desert. One example is the author's suggestion to amend garden soil with biochar. Biochar tends to raise soil pH. This is a good thing in the acid soils of the Northeast, but not a good thing in the alkaline soils of the Southwest. For a look at a local resource on intensive gardening techniques, check out the section on intensive vegetable gardening in the [Arizona Master Gardener Manual](#).

Until next time, happy surfing!

Gary Gruenhagen, Master Gardener
virtualgardener@cox.net



Ask a Master Gardener

✿ Cochise County Master Gardeners are available to answer your gardening questions either by telephone call to the Cooperative Extension Office or on-line on our web site at: <http://ag.arizona.edu/cochise/mg/question.htm>

✿ “What is that Plant?” ID service is available to the public by Herbarium volunteers. If you are wondering what that naturally growing or naturalized plant is, getting an identification is easy. All you need to do is visit the Cochise County Herbarium website: www.cochisecountyherbarium.org and click on the Plant IDs tab to learn how!

August Reminders

- ◆ Keep pulling the weeds
- ◆ Prolong annuals by deadheading spent flowers
- ◆ Plan your spring wildflower garden
- ◆ Watch for nutrient deficiencies, sunburn, salt burn, overwatering, & insects
- ◆ Fertilize

Tools of the Cactus Propagation Trade

Keith Burkard is a biologist at B & B Cactus in Tucson. He gave a great presentation at the Tucson Cactus and Succulent Society's Sonoran XI Conference entitled *Growing Cactus and Succulents for Free, A quick guide to Easy Propagation*.

Fortunately for those of us who are rookie cactus propagators, Keith discussed the many tools and techniques he uses to handle prickly plants.

1. Armor. First, he said he wraps his thumb, index finger, and pinky in masking tape when handling the smaller plants applying it with the sticky side out and putting on lots of layers. He basically creates a removable cast for each of these three fingers. When the casts are on his fingers, cactus needles and glochids can't pierce his skin. This makes handling small cactus easy. If he has to handle larger cactus, he puts a really sturdy glove over his hand while he is still wearing his masking tape finger covers. He said once you get some finger covers made, they last a long time.

2. Forks. He uses small table forks to lift tiny seedlings from the medium in which they are grown.

3. Labels. Keith doesn't rely on his memory. He uses a variety of labels to record what's in a pot or flat. He said we should always use lead pencils because ink will fade. There are good metal labels you can write on that are really sturdy. You basically engrave on the metal but you can't erase these. Keith often places a label in the very bottom of a pot. If the label in the soil gets lost, the one at the bottom of the pot will be intact.

4. Salt shakers. Keith uses these to spread tiny seeds or fungicide. If the seeds are super tiny, mix them

with a little sand to help get them spread evenly.

5. Scoops. Using the correct size makes it easier to fill pots or flats quickly.

6. Growing vessels. Speaking of pots, Keith reminded us that any solid container with good drainage can be used to start seeds.

7. Knives and Cutting Tools. Keith has a variety of knives that he uses to make cuttings, prune, and cut off roots that escape from a pot. He uses really sharp knives on living tissue and a dull knife if he needs a small and narrow transplanting tool or something to help pry apart containers. Keith said he likes to sterilize his knives (and his reusable pots and other tools) using a formula of three ounces of bleach to one gallon of water. He puts the pots and other large items in big tubs of this formula to kill any pathogens and clean up the pots for reuse.

8. Carpet strips and old towels. When he needs to move bigger plants, Keith wraps them in long carpet strips about 6 inches wide and several feet long. He puts the nap toward the spines to protect them. Then he makes a long loop that he can use to lift and move them. He said that once a spine is broken from a plant, it will not regrow. Keith has found that rolled up towels and newspapers work well for smaller plants

To be continued next month . . .

Terrie Gent, Master Gardener



Cuttings 'N' Clippings

✿ CCMGA will be meeting Thursday, **August 11 at 2:00 PM**. For more information on the Cochise County Master Gardeners, go to the web site at:

<http://cals.arizona.edu/cochise/mg/>

or contact Valerie at:

valeriedavidson@email.arizona.edu

You can also follow them on Facebook at: www.Facebook.com/CochiseCountyMasterGardeners

✿ Join Water Wise on **Saturday, August 20, 9:00—11:00 AM UASV** for an informative program on *Native Plants and Their Pollinators*. Would you like a garden which requires less water, maintenance, and pesticides, AND is healthier for you and the natural world? Join us to learn about the many advantages of using our local native plants in your garden and being a partner with nature.

Check out the Water Wise web site to see what else is happening in 2016 at:

<http://waterwise.arizona.edu/>

✿ The Cochise Chapter of the Arizona Native Plant Society's next monthly program will be held in September. For information follow them on their web site:

<http://www.aznps.com/chapters/cochise/cochise.htm>

or Facebook:

<https://www.facebook.com/AZNPSCochise/>

Speaking of Cacti . . .

This year the *Trichocereus sp.* blossoms have been spectacular! Mrs. Virtual Gardener has put together a short video featuring the Jewels of the Desert in our garden. You may view it [here](#). Enjoy!

The Joy and Celebration of Bird Gardening

The 25th Southwest Wings Festival is August 3-6, 2016 on Cochise College campus. There are numerous talented speakers addressing numerous fascinating and educational topics. Visit

swwings.org to see the schedule and all the features. Take advantage of this wonderful three-day festival.

Inviting birds into your garden adds such beauty with their color and personalities, their sweet songs, and their mesmerizing activity. And the plants added to your garden for their food and shelter add lovely blooms, leaf color, varying structure, and texture. More importantly, you are providing safe and healthy habitat which is increasingly hard to find for our feathered creatures throughout the country.

It's as simple as providing food, water, and shelter to create a habitat that is nurturing for our birds, and a beautiful garden paradise for you ... no matter what the size. In this article, we will discuss water and nesting. Next month we will address food ... the various seed types, and a variety of plants to be used in bird habitat gardening. It will be time for fall planting, and we'll give you lots of suggestions for plants to include in your bird garden.

You can start today by setting up a bird feeder or two. It is equally important to add water to your garden and just as much fun. Not only are birdbaths beautiful pieces of hardscape to add interesting visual structure to your garden, they provide an essential oasis for your feathered friends. Birds need an ongoing, dependable source of clean water for drinking and bathing. The water may even attract species of birds that are non-seed-eating, but come into your garden for the essential water.

There are two important factors to address with your birdbath. The first is cleanliness. Bathing birds can leave dirty feathers and droppings

behind, creating unsanitary conditions for the next visitors. Also, algae grows more quickly in unclean water. You can easily clean your birdbath every day or two using a small scrub brush. Then empty the dirty water and refill with fresh. To make it easy, just keep your scrub brush hidden close to your bath so it's convenient to grab on a regular basis. In addition, by changing the water every day or two, mosquito eggs are not able to develop and hatch.

The second factor in setting up your birdbath is the water level. Ideally, the water edges should be no deeper than one half to one inch deep, with the middle being no deeper than two inches. You can arrange rocks in the bath, allowing your birds a safe place in the middle of the water from which to drink without getting wet. The stones also allow traction for standing in a bath which might otherwise be slippery.

If possible, place your birdbath in a shadier location such as under a tree. The shade will keep the water cooler and fresher, and the tree branches will offer your birds a safe and convenient place to preen and primp after their bath!

There is something very special about finding a nest in a tree or shrub which you have planted, and feeling like you've been "chosen" to host this bird family. Building nests requires a lot of time and energy on the parents' part. The less energy the parents have to spend on searching for material to build a nest, the more energy they have to devote to other family activities such as incubating eggs and collecting food for new babies. You can help make

nesting attempts easier by providing safe locations and plenty of nesting materials. Put out various nest-building materials such as piles of small rigid and flexible sticks, pieces of native vines, pine needles, hay or straw, or leaf mulch. Use a wire structure such as a suet cage hung in a tree to offer fibrous materials such as cotton batting, coconut fibers, horse hair, and wool from sheep, goat, or alpaca. You can also offer hair and fur you have groomed from your pet as long as it has not been exposed to tick or flea treatments. Do stay away from using synthetic materials such as netting, twine, or fishing line.

Birds that build nests in trees and shrubs are often called "open cup" nesters. There are other birds that prefer more of a protected "cavity" in which to nest, such as holes in dead trees. For these nesters, you can provide nesting boxes. But birds have varying architectural tastes. Different species of our feathered beauties prefer different styles of nesting boxes. Once you have identified what birds are visiting in your neighborhood, you can easily research which nesting box style they prefer.

We've started with some basics here and will continue in next month's newsletter. ACE Hardware is offering you a coupon for a discount on bird seed to get you started with your feeders. Southwest Wings Festival will offer tremendous education and motivation. Happy Gardening, and Happy Birding!

Jan Groth, Master Gardener Program Coordinator



ACE Hardware & Garden Place
 In honor of the 25th Annual
 Southwest Wings
 Birding & Nature Festival



\$3.00 off regular price
on any bird seed or feeder in stock

Coupon valid through 8/31/2016 at Sierra vista Ace Hardware only.



At a Glance Box

It's a Bloomin' Cochise County Native Plant of the Month

Plant: COMMON NAME, Arizona milkweed, Narrow-leaved milkweed

Description: Sub-shrub, deciduous. Rabbit and deer resistant!

Blooms: Interesting white flowers, mid-spring and during monsoon.

Use: Attractive, 18" x 18" symmetrical pollinator plant; looks great in a container.

Culture: No pruning – just pull off dead seed pods (or better yet, harvest the seeds for propagating plants or donating seeds to milkweed growers).

Learn more: Cochise County Herbarium,

www.cochisecountyherbarium.org and SEINet – Arizona Chapter Projects, <http://swbiodiversity.org/seinet/projects/index.php?>

For an in-depth article, see below.

Karen LeMay, Guest Author

Arizona Milkweed

Milkweed plants are finally getting the recognition they deserve, due in part to publicity about the decline of Monarch butterflies, as well as the popularity of butterfly and pollinator habitat gardens. All milkweed flowers are an important source of nectar for insects as well as the food plant for the caterpillars of Monarch and Queen butterflies and a few tiger moths. In addition to their wildlife benefits, milkweeds are a versatile group of plants for a garden setting, forming low clumps, vines, or five foot tall stems with variously colored blossoms.



Several Arizona milkweed plants in a garden bed, given supplemental water.
Photo by Karen LeMay

Arizona milkweed (*Asclepias angustifolia*) is an especially beautiful and local milkweed species, found only in southern Arizona and Mexico, naturally growing at an elevation of 3,500 to 5,700 feet. SEINet records (<http://swbiodiversity.org/seinet/taxa/index.php?taxon=3768>) show collections of this plant from several parts of Garden Canyon on Fort Huachuca growing on hilly slopes and along streambeds. The Huachuca Mountains have twelve species of native milkweeds, a sizable number considering there are about 73 species in the United States. About 30 of these species are regularly used by Monarch caterpillars as host plants. Judging by the Monarch and Queen butterflies in our garden, Arizona milkweed is a favored food of their caterpillars, even though we have several other milkweed species nearby.

I wonder why Arizona milkweed has not become a popular nursery-trade plant yet? I can only think milkweed plants have had a bad reputation due to some species'

milky sap being toxic to cattle and other livestock, and having the name "weed" in their name. Arizona milkweed fits so nicely into a garden, its blooms forming low, showy white mounds. It does lose its leaves around December, but leafs out early and makes a very nice symmetrical 18" mound of thin green leaves and white flowers in the spring and late summer during our monsoon rains. This plant grows in full sun or part shade, profiting from supplemental watering before the monsoons. If you're like me, you will love seeing butterflies gathering nectar from the flowers, their caterpillars feeding on the plant, and the jewel-like chrysalises, each with a butterfly waiting to emerge. Complete metamorphosis in our gardens!

Take a close look at a milkweed flower. All species have star-shaped flowers with five sepals reflexed below the stiff upright beak (or hood). Pollinators perch on top of the stiff beak to get to the nectar by sliding their tongues down the side of the beak. Milkweed plants typically produce and daily replenish a large amount of nectar, which is important for daytime and nocturnal pollinators. A constant source of nectar for pollinators is another reason milkweed plants are perfect for pollinator habitat gardens.

Another interesting aspect of milkweed plants is that the pollen grains are held together in a sticky bundle (called a pollinia sac) that must be carried by a pollinator to other milkweed plants. The flowers are bisexual (each flower has

(Continued on page 6)

(Arizona Milkweed continued from page 5)

female and male parts) but the milkweed flower's unique structure prevents self-pollination. Even though many insects visit milkweed flowers for nectar, only those with specialized pollen-collecting structures on their legs transport the pollinia sac to another plant. As removing the pollinia takes considerable strength, small to medium sized bees, butterflies or beetles are not efficient pollinators. Based on research, bumble bees and carpenter bees are the most effective pollinators of milkweed flowers.

Once pollination has occurred, two-inch long seedpods are formed on the plant with many seeds inside attached to feathery tufts that disperse the seeds. If you're interested in trying to propagate the seeds, do a web search on YouTube to watch methods to grow milkweed seeds. Also, check out this website:

<http://www.growmilkweedplants.com/arizona-native-milkweed.html>.

Young plants may be available from Desert Survivors (Tucson) or Borderlands Restoration (Patagonia) plant nurseries. However, growing plants from seed may be the best way to add a grouping of these plants in our gardens.

Karen LeMay, Guest Author, Founder of Pollinator Corridors Southwest (a nonprofit supporting native plant habitats and their pollinators) www.PoCoSouthwest.org Technical advice and insect photos by Robert A. Behrstock

Cochise County Master
Gardener Newsletter Editor
Carolyn Gruenhagen



Feather-tongued bee on Arizona milkweed
R.A. Behrstock/Naturewide Images



Caterpillar of Queen butterfly on Arizona milkweed
R.A. Behrstock/Naturewide Images

"How deeply seated in the human heart is the liking for gardens and gardening."

—Alexander Smith