

Plant Exchange

Raising Pollinator Bees

Share tips from your plant experience, give us a tour of your plant site, or send your questions related to outdoor or indoor plants to news@yankton.net Attn: Brenda Johnson or write to P&D, 319 Walnut St, Yankton, SD 57078, Attn: Brenda Johnson.

BY BRENDA K. JOHNSON
P&D Correspondent

LEARN BY RAISING MASON BEES

“When you get four or five people together, we talk gardening,” Dot Blaha said. Blaha lives on nearly an acre in the Missouri River breaks west of Yankton. She’s a member of Missouri Valley Master Gardeners and has a variety dwarf fruit orchard, vegetable garden, and other plants abloom in her country yard. “I said I wasn’t sure if my fruit trees were going to produce because I hadn’t seen honeybees.”

Another friend said, “I haven’t seen any either, but have you tried mason bees?” This conversation occurred three years ago. “That’s where I started,” Blaha said. “Pure curiosity.”

She began to look more carefully at her blooming fruit trees. “In early spring, there are small black flying insects about the size of a housefly around the blossoms. They move quickly so it’s hard to see what they look like.”

Osmia lignaria or (blue) orchard mason bee that she raises is one of several kinds of mason bees native to America. Seed companies such as Territorial Seed Company in Oregon are sources for vegetable, flower, and fruit gardeners who want to increase pollination. Before ordering mason bees, Blaha learned as much as she could about them.

“Mason bees are beneficial insects that aren’t social. No colonies or hives. They don’t depend on each other like honey bee queens and workers,” she said. She found that these solitary bees do live well in communal nests, each bee with a row or so of tubes or channels in a man-made nest where they lay eggs. Mason bees emerge as adults in spring, lay eggs in spring and summer, and the adults die by September. She said that they aren’t aggressive and seldom sting except for protection, so introduction of bees and nests are harmonious with her grandchildren and pets.

Blaha is practical. She found out that she could buy bees ready to emerge from cocoons as adults each year to help pollinate her plants or she could provide nests and overwinter bees. Some of the released bees might lay eggs in the nests that hatch and spin cocoons by early fall. If they survived winter in nests they might emerge next year when placed near her orchard.

“I don’t know if these mason bees are native to South Dakota, but you bring them inside in winter because they may not survive outdoors.” In nature in some areas of the country, woodpecker drillings, insect holes and hollow stems are places mason bees might lay eggs.

She decided against honeybees along the way. I don’t have the space required for honeybees and I’m not interested in the hive for honey. I couldn’t find insects more docile than mason bees.

MASON BEES HELP IN POLLINATION

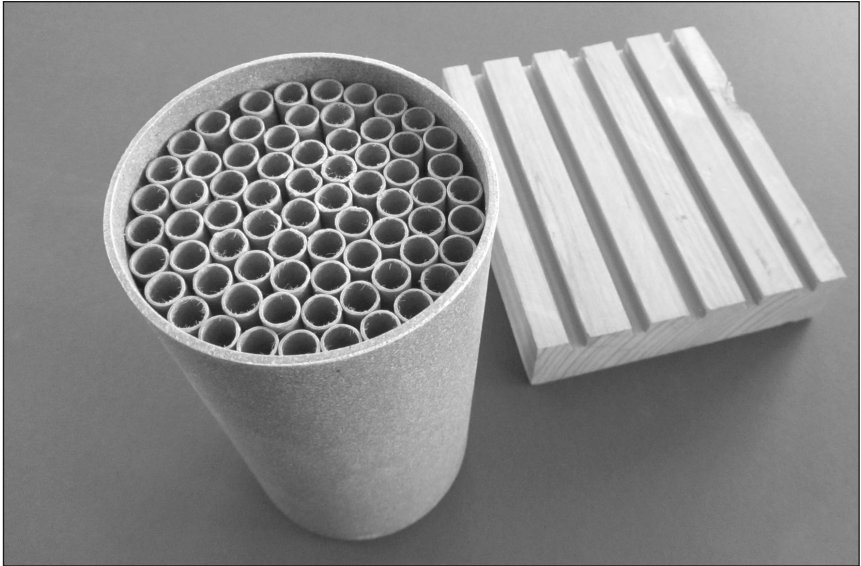
“In spite of some broken branches and the (2012) weather, I still (harvested) two bushels of peaches from the tree. They weren’t big, but were tasty. Apples weren’t big, but I seldom water,” Blaha said. “This is my third year with bees. There is no way I could have gotten the amount of peaches without the bees.”

Mason bees pollinate as a part of their life work to the mutual benefit of these insects and plants. As they gather nectar for food, they also collect and distribute pollen from flowers of different plants on the stiff hairs of their legs and abdomens.

Blaha said that the male bee’s job is to fertilize the female bee. The female bee lays eggs over a span of four to six weeks and dies. She collects pollen and nectar and forms it into a ball, puts the “bee bread” into a channel or tube and deposits an egg with the pollen and nectar ball. She put up a wall of mud in the channel and brings in another pollen ball to repeat the



ABOVE: Gentle spring rains bring wild plum blossoms and bees. No pollinators seen here, as gentle bees moved to the other side of the tree when approached. **BELOW:** In nature mason bees use hollow stems and drilled woodpecker holes for nests. If communal housing is provided, such as the cylindrical nest on left, it allows bees more time to collect nectar and pollen in a desired area. Dot Blaha of Yankton stacks layers of wooden three-sided row of channels on right to form a homemade mason bee nest. (Photos: Brenda K. Johnson)



process. Each female lays about a row of five to ten channels in a nest with each channel having about one egg and pollen ball per inch; about thirty to forty eggs total. Working with mud for sealing and separating each egg with its pollen food and capping off the channel with a mud plug gives the mason bee its name.

“Pollen is food for the larvae,” Blaha said. “The egg hatches, eat bee bread, and spins a cocoon around itself by fall. (Pupa in the cocoon becomes the adult bee.) The developing adult is dormant over winter until it gets warm out, about later March – April here. They have to start collecting right away with the fruit trees in bloom.”

“Female bees determine the sex of the eggs,” she said. Unfertilized eggs become male bees and fertilized eggs become female bees. “She will lay four female eggs in a channel and then two male eggs. Males hatch first and wait for the females. They fertilize and die. Male mason bees don’t eat or collect pollen.”

While Mason bees search for their own houses in nature, supplying the housing benefits their pollination. “Less time they have looking for food, the more time to pollinate,” she said. “You try to keep housing in a hundred yards of where you want

them to work.” She has an east-facing retaining wall and the south and east side of a shed that she attaches the bee housing. Morning sun warms bees. She makes sure the nests are firmly in place. She said that tree limbs have too much movement.

“Not so many houses together,” she said. “Bees returning to nests get confused, like when you come out of Wal-Mart and say ‘Where did I park my car?’ I like a stack of five sets of columns.”

Untreated wood can be used for making houses. “I had leftover redwood from a deck project and my son Jon made these. They do get wet and warp over time. Waxed cardboard can be used. Whatever you use for channels needs to be easily taken apart and be (easily cleaned) because parasites can grow in them. Diameters of openings need to be about 5/16 inches, which is about the size of the bee’s abdomen. Source for a jigsaw house is NC State Cooperative Extension: <http://www.ces.ncsu.edu/deptsent/notes/other/note/09/note/09.html>

Besides housing, mason bees need mud. “You mix up water and soil in an ice cream bucket and wet it daily,” she said. Blaha keeps the bucket of mud near their nests.

She allows about two months or more for the bees to gather pollen and nectar and lays eggs in their houses. “You have to be gentle with them,” she said. She removes the houses, wraps the houses in blankets for even temperature and stores the houses in her cool garage until winter. Then she moves the houses, blankets and all to the attic or basement or refrigerator where it is cool and slightly moist over winter but not cold. When she takes them outside in the warm spring, they break dormancy and begin to emerge as adults to fertilize or become fertilized, and lay eggs with pollen needed later for food in their houses. As they collect pollen they pollinate her peach, apple, plum, chokecherry, grape, raspberry, strawberry, and vegetable plants.

LESSONS LEARNED SO FAR

“I learned not to put (houses with cocoons) out too soon,” Blaha said. She waits to post the houses. “Not when the first blossom appears. Not until the weather has settled; some years, not until the second week in May. (The weather) can be too erratic. There wouldn’t be enough blossoms early and I defeat my purpose. The apricots and peaches bloom early, then apples, and later grapes and then vegetables. I have a window of about two months or more for them to gather pollen.” She has read that she can slow the bees from breaking dormancy by keeping them in the refrigerator in an unsettled spring.

On the other end of the season, some parasites begin to appear in the houses later in the summer. Native bees tend to have fewer parasites than honeybees. She has tried three-sided square channels in houses with duct tape as the fourth side for easy house cleaning.

In terms of number of mason bees needed for an area she said, “A twenty – fifty block house will supply bees for a typical yard of trees and bushes.” She has found that other native bees also lay eggs in her house. One of the sources suggests two or three female bees per tree. She expects some mortality.

“A house I kept over winter the first year didn’t hatch well in spring,” She said. “I figured the bees got too cold.” Now she wraps the house in a blanket for even temperature.

“Mason bees look a bit like houseflies, but they have antennas and rest with wings against the body,” she said. “If you see black insects in your fruit trees, it’s a good idea to identify them instead of spraying.” They may be beneficial insects such as mason bees.

“I don’t spray my fruit trees. Instead I use a concoction: one cup vinegar, one banana peel, (some add a little sugar) and water in a half gallon plastic jug with the lid off. I hang it in each tree. It’s stinky, but I haven’t had peach borers. I do get brown spots, but that’s not from insects. I add more ingredients as contents evaporate. I do wait to put this out until two weeks after the mason bees are working.

Blaha recommends these resources: The Orchard Mason Bee by Brian L Griffin; Practical Pollination with Mason Bees by Margaret Dog Sterom; and state extension websites such as at Washington State University and North Carolina State University.

YOU CAN’T EAT FLOWERS

Orchard of dwarf fruit trees and other plants are sign of interest in plants. Blaha said she’s not a farm girl but should have been. Until she was fourteen, she was an only child. “Dad had a huge garden. Mom and I would pick and can. Dad had two sisters with no daughters. They lived on farms. I would stay with one aunt or the other in the summer. I always loved being outside and growing things.”

“I’m not into flowers because you can’t eat them. If I pulled that many weeds, I need to be able to enjoy the plant, not just look at it. My dad never had a flower in the house.” Sure enough, inside her home her houseplants are herbs for cooking fresh or dried. Outdoors are her fruit trees, small fruit and vegetable garden ready for another season.

June Plant Tips

Linda Brown is the greenhouse manager at Bomgaars Supply, 2300 Broadway in Yankton. With many growing herbs at home, she shares these tips. “Caring for herbs is not much different than caring for other annuals and perennials,” Brown said. “Most herbs are easy to care for, although each type has its own growing requirements.”

- Most herbs grow best in full sun, in good moderately fertile and well-drained soil.

Herbs require adequate moisture but not wet feet. They rarely need fertilizer. In fact, excess fertilizer leads to floppy growth, vulnerability to diseases and pests, and can inhibit flowering. Herbs such as chea, lavender, and Echinacea grow better in alkaline soil that is common in this area.

- Water herbs well on planting day and often until well established. Established herbs may be fairly drought tolerant.

- Herbs such as mints, bee balm, cardamom, chervil, golden seal and sorrel grow better in soggy ground. They may grow rampantly so allow plenty of room for growth.

- Snip 2-3 inches off to encourage bushier plants and use herbs. Never trim more than 1/3 of the plant foliage.

- Bring your herb garden indoors for winter. Plant herbs such as chives, lavender, parsley, mint, rosemary, or thyme in containers and place in a sunny south or southeast window with at least 5 hours of sun per day and no drafts is preferred. Use containers 6 - 12 inches deep. Add soil-less potting mix to avoid soil born diseases. Mix drains well. Water sparingly when soil feels dry. Feed once a month with fertilizer labeled for edibles to ensure healthy plants.

Dibbles & Bits

- Vegetable Gardening in South Dakota by Dr. Rhoda Burrows, South Dakota State University (SDSU) Plant Science Department and SDSU Extension horticulture specialist, is a definitive gardening publication that has been newly revised and is available for download. Topics include garden location, soil preparation, planting tips, fertilizer and watering information, weed control, insect and disease management and harvest and preservation by drying. <http://igrow.org/up/resources/06-2024-2012.pdf>.

- Tree seedlings planted this spring such as in a shelterbelt generally don’t need fertilizer right away according to SD Forester Dr. John Ball. “Trees are very conservative in their use of elements and do not require the fertility needed for row crops.” His concern is that adding elements beyond the level needed “can increase soil salts to harmful amounts to seedlings.” For nitrogen, phosphorus, and potassium levels, see Dr. Ball’s March 20th Pest Update at <http://sdda.sd.gov/conservation-forestry/tree-pest-alerts/>

- Butterfly habitat can be grown in the backyard as well as the butterfly habitat project described at L & C Recreation Area last Plant Exchange. These plants provide for butterfly breeding, feeding, and cover and are located in areas safe for butterflies and free of pesticides and herbicides. Plant examples include milkweeds such as Butterfly Weed (Asclepias tuberosa), Common Milkweed (Asclepias syriaca),

- and Swamp Milkweed (Asclepias incarnata), which grow in this region. Some pollen and nectar sources include Indian Blanket (Gaillardia pulchella), Purple Coneflower (Echinacea purpurea),

- Joe Pye Weed (Eupatorium purpureum),

- Scarlet Sage (Salvia coccinea), Tithonia Torch, Mexican Sunflower (Tithonia), along with non-native Zinnias and other nectar/pollen producing flowers that grow in this region. Native grasses provide cover and include such as Big Bluestem, Indiangrass, Little Bluestem, Sideoats Gramma, and Switchgrass. Source: www.MonarchWatch.org

Gardener To Gardener

Share what you have learned about plants.

Kim Brannen of Yankton is a retired soil scientist, works at Lewis & Clark Recreation Area and is assisting with the butterfly habitat project there, and has reclaimed some native plants on her family acreage with this mowing technique.

“Timing is everything!,” said Brannen. “Many landowners with areas of intermixed non-native and native grasses and flowers can increase their native plants simply by mowing at the right time.” Here are her tips for success:



- Many non-native plants such as Bromegrass & Bluegrass tend to green up earlier in the season.
- Mow these plants to stress them, deplete their root reserves, and keep them from

crowding out the later emerging native plants.

- Keep mowing those non-native plants until the native ones start to green up. During a normal year, mow the area once a week during the month of May. If spring weather arrives early, start mowing earlier. Most years, you will want to quit mowing the first week of June. It might take several mowings to keep them in check.

- When the native plants grow up almost to the height of your mower blades, quit mowing and let everything grow.
- Spot mowing can help keep weed patches under control.
- Early, well-timed mowing over several years will gradually increase the amount and vigor of the native plants.

Plant Exchange: Blog With Us!

This blog is an interactive site for people of our USDA Zone 4-5a region to exchange ideas about plants. You can read some past Plant Exchange features you missed or share a comment about plants. Some topics:

- How does a thrifty homeowner create a spring yard with curb appeal?
 - What’s blooming around the United States and elsewhere? See “Garden Bloggers Bloom Day” link for May 15, 2013.
 - What are plant tips from a regional commercial grower? From other gardeners?
 - How did local gardeners use raised beds and soaker hoses to achieve a bumper crop in a drought season?
- Check us out at the web address: brendakjohnsonplantexchange.wordpress.com

Cramer-Kenyon Historic Home

Annual Tour and

Garden Party

Sunday, June 9th

1:00-4:00pm

Victorian-era East Lake Stick Style Home

at 509 Pine Street

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Garden Tours, Walking Tours, Music, an Historic Vignette at 2:00PM and Light Refreshments

No Admission – Donations will be accepted.

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