



President's Patch

By President Deb Blaylock

A big shout out to all the folks who helped plant the Palmer Veterans and Pioneers Home and the Palmer Public Library. We had good weather for both, and hopefully, they are growing and flowering. I haven't been by to check since we planted. The weeding schedule for both of these is posted on our website in case you forget which week you signed up for. There are some vacant August dates and we would appreciate a few volunteers signing up to do those weeks.

We won't be doing the booth at the Palmer Midsummer Garden and Art Faire because we have had no one volunteer to be the chairperson for the committee. Given that we have received no guidance from the Palmer Chamber of Commerce on how we are expected to set up, it's probably a good thing. It is unknown what hoops we would have to jump through to meet and COVID restrictions or requirements.

We will be doing the July 22nd Members-Only Summer Garden Tour. We have two confirmed locations and one tentative. An email with instructions will be sent out to the current membership when we get closer to the event. Our tentative place is Alpine Gardens, and Jaime is asking for a few folks to help prepare for the tour if anyone is interested or able. You can contact him at 355-2462.

There are no July or August regular meetings scheduled. Our next regular meeting is scheduled for September 14th. At this time, we still have no idea if we'll be able to meet at the Matanuska Experiment Farm or not. Let's all keep our fingers crossed for things to open back up fully and hope that we can resume our face-to-face meetings.

In July, a poll will be emailed out to all members regarding board and officer vacancies. We will be having elections in November and need nominees for most of the positions. Consider which position you would be interested in and respond to the email when it is sent out. Its time for some new

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GENERAL MEETINGS FIRST MONDAY OF THE MONTH NEXT GENERAL MEETING

LOCATION:
SPEAKER/TOPIC

THERE ARE NO GENERAL MEETINGS FOR THE MONTHS OF JULY AND AUGUST 2020.

THERE WILL BE A MEMBER'S ONLY TOUR ON JULY 22ND. DETAILS WILL BE EMAILED TO CURRENT MEMBERS BEFORE THE DAY OF THE TOUR.

folks with new ideas and energy to take the reins and move the Association forward. The current crew took on the challenge of updating our 501(c)3 status with the IRS (which was no small endeavor.) We were successful with getting it filed and approved.

I hope your gardens are all planted and growing well. I think I've got a record amount of chickweed! Here's to a successful harvest to all members!

PEASANT'S PERSPECTIVE: BY CURT MUELLER, MASTER GARDENER

Photo submitted by the author

A most interesting insect, if you are fortunate enough to see one, is the hummingbird moth. When one first went flying close to the peasant it was a startling sight, formidable looking like a huge bee of some kind. Unable to identify it at first, after seeing them over the years, the peasant was impressed that such a large insect existed in Alaska. They are not overly plentiful and some years quite scarce depending on weather conditions during the previous winter.

The hummingbird moth produces an audible hum when flying, the hum being similar to that of a hummingbird. They can be mistaken for a hummingbird but are considerably smaller. Another name for them is clearwing moth. They lose scales from their wings, making the wings transparent.

These moths have a long tongue which enables them to reach nectar in flowers with deep tubules to the nectar source, lilacs being a favorite. The moths are diurnal, being active during daylight hours during our long summer days.

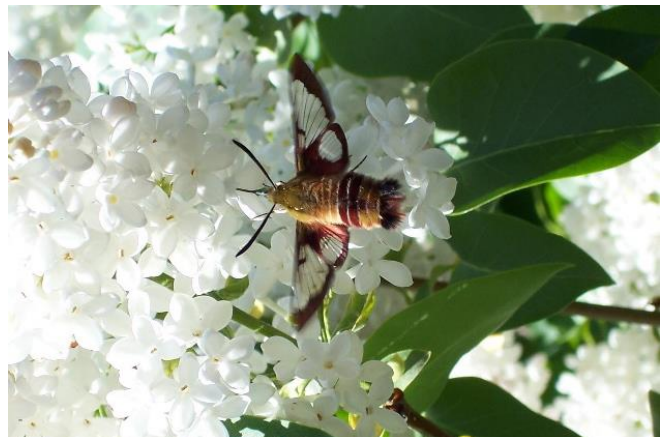
The peasant was prompted to look up the life cycle of these insects from the several sources available on the internet. The adult emerges in spring about the time bluebells are in flower. Its only food at that point is nectar. They mate and the female lays eggs on plant leaves such as honeysuckle, dogbane, and members of the rose family. The larvae become quite large with a horned tail, similar in appearance to a tomato hornworm. They have a green color which makes them hard to spot on the green of the host plant. They spin a cocoon in fall and spend the winter as a pupa, emerging as a moth in spring.

In a cool climate such as ours one life cycle is completed per year. The long winter with

frequent thaws and refreezes periodically during our southcentral winters probably causes the death of some pupae when the snow disappears and a following cold spell reaches them in their leaf cover. *Hemaris thysbe*, the name for our Alaska clearwing, survives in the Fairbanks area. Typically, the first snowfall remains over winter in the Fairbanks latitude, providing winter cover to enhance survival of the species.

Hummingbird moths are an unforgettable sight for gardeners. Keep a lookout.

Thanks, folks.



The peasant was fortunate in getting a closeup of this hummingbird moth on our white lilac.

If you donated plants, here's a thank you note:

We at the Matanuska Experiment Farm & Extension Center would like to extend our sincere thanks for the generous donation of all of the vegetable, herb & flower plants.

The harvest from these plants will go to Adair Harmon, Nutrition Educator, to distribute through AK Tilth, Wasilla Food Bank, Kids Kupboard, WIC and other programs to feed families in need. The spontaneity of this collaboration is what makes our community an amazing place to live in and raise a family.

Thank you again for your generosity and not only supporting MEFEC but our Mat-Su Community!!

Over the Counter Soil Garden Test Kits - Value or Confusion? (Part 2)

By Robert Van Veldhuizen; Photos submitted by the author

In the nutrient tests, a 5:1 distilled water to soil is mixed in a plastic cup and allowed to settle for 24 hours. This is primarily to settle out the clay-sized particles and provide a mostly clear soil/water suspension in which the color change can be observed. Similar to the pH test, the soil water suspension is added to the sample chamber of each nutrient testing container, and the contents of a plastic cap are then added to the sample (the color of the cap matches the color of the container to prevent confusion). The contents are then shaken to mix the cap contents with the soil/water suspension and allowed to sit for 20 minutes.



For the Nitrogen test, this method tests only for the presence of nitrates (NO_3^-) and not ammonium (NH_4^+). In most garden soils with sufficient additions of organic matter (compost, manures, etc.), the first part of the biochemical breakdown of the nitrogen cycle is the conversion of organic nitrogen into the mineral plant-

available form, ammonium, in a process called mineralization. The ammonium is then converted into the next plant-available form of nitrogen called nitrate, through a biochemical process called nitrification. Any high level of nitrates in your garden soil as measured from this test is not necessarily what you want for maximum plant growth as it could even lead to leaching of the nitrates past the root depth and potential environmental contamination of ground water. Typical soil levels of available nitrogen should be fairly low because it was used by the garden plants to make chlorophyll and plant proteins that were lost from the nitrogen cycle when they were harvested for consumption.

In the soil test kit, it's hard to tell what the exact nitrate level is because the soil – water solution is a bit cloudy. However, it's also not very pink so the level is most likely **N1 – Deficient**. Using the chart that comes with this test kit, a soil deficient in nitrates needs a sodium nitrate fertilizer (16% N) for veggies of 14.5 ounces (weight) per 100 ft². Sodium nitrate fertilizer is not likely to be found in Alaska in large quantities, so other nitrogen sources would need to be considered that are more common, like urea or calcium nitrate. There would also have to be additional calculations done for those fertilizer sources. These calculations are based on the percentages of N on the outside of the bag. However, the formulas needed to calculate the requirements for any other fertilizer sources are not in the instructions, which might make things a bit difficult.
(Continued on page 4)

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(Shameless Plug #2 – the formulas for determining fertilizer rate applications are in my book). As an example, urea (46% N) is a common nitrogen fertilizer that can be found in Alaska. Substitute urea for the sodium nitrate and you would need to apply around 5.1 ounces (weight) per 100 ft². The more concentrated the fertilizer, the less material you need to supply the needed nutrient.

The laboratory test for both nitrates and ammonium will be added together to get Total Nitrogen. The lab results were 23.9 ppm for nitrates (**adequate level**) and 6.1 ppm for ammonium (**low level**). The Total Nitrogen was then 30.0 ppm, which is right about in the middle of a “good” range for Total Nitrogen (20 – 50 ppm Total N) for growing veggies. From the laboratory test you might be able to get away without adding any N fertilizers for this growing season. On the other hand, if you are wanting to grow leafy greens then more nitrogen would be needed. To get an additional 10 ppm N (for a Total Nitrogen level in the soil of 40 ppm) you could add around 1.6 ounces (weight) of urea fertilizer (46% N) per 100 ft².

The consequence of adding nitrogen fertilizer that you might not really need could lead to garden plants putting out more leaves and not any veggies or fruit you want for a harvest. Plus, excess nitrates in the soil can move with the water, causing potential environmental harm to ground water resources.

For the Phosphorus test, this method measures for the presence of free orthophosphates (PO_2^{-3} , HPO_4^{-2} & $\text{H}_2\text{PO}_4^{-4}$), which are the plant-available forms of phosphorus. In the laboratory method for this test the reagents

that react with free orthophosphates (ammonium molybdate & stannous chloride) are in strong acid solutions. It is not clear what is actually in the plastic caps that are added to the soil/water suspension, but this could be potentially hazardous. From results of the soil test kit, the light blue color indicates the level of available phosphorus is around **P1 – Deficient**. Again, using the chart that comes along with the test kit, a soil that is deficient in phosphorus needs a triple superphosphate fertilizer (45% P_2O_5) applied at a rate of 5.5 ounces (weight) per 100 ft² for veggies. The laboratory test for available phosphorus was 71 ppm (**low level**); a “good” range is around 100 – 150 ppm for growing veggies. Triple superphosphate is a common fertilizer in Alaska and to get an additional 54 ppm (for a mid-level of 125 ppm P in the soil) from the laboratory test you could add around 4.4 ounces (weight) per 100 ft². For the test kit and the laboratory, the test for phosphorus are fairly close for the fertilizer recommendations.

While the test kit phosphorus scale is true in that a darker blue color indicates the presence of higher levels of free orthophosphates (available for plant use), it does not explain the link between free orthophosphate and pH. Since this soil is very acidic, phosphates will bond with iron and aluminum to form insoluble iron and aluminum phosphates which are not plant-available forms. Typical Alaska soil levels of available orthophosphate will also be fairly low, especially if the active soil pH is acidic. This is reflected in the laboratory tests for active pH, the SMP Buffer pH, and the phosphorus test. A management solution is to maintain a neutral active soil pH (6.0 – 7.0), which would maximize available orthophosphate levels.

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Another phosphorus management method for Alaska is to add extra phosphorus fertilizer like triple superphosphate to compensate for the fixation from iron and aluminum in the soil and still provide what is necessary for plant growth. Unlike nitrogen, phosphorus is not mobile in the soil and tends to stay where it is placed. So, unless the soil moves from erosion (and nobody wants that to happen), there isn't as much of an environmental concern with high levels of phosphorus fertilizer applications.

For the Potassium (potash) test, this method measures for the presence of the ionic form of potassium (K^+), which is the plant available form. The orange color results for potassium from the test kit are somewhere between the **K2 – Adequate** and **K3 – Sufficient**, difficult to determine by eye alone. Using the chart for potassium fertilizers that came with the test kit, a soil that is adequate for potassium needs a potassium chloride (Muriate of Potash) fertilizer (60% K_2O) of 2.5 ounces (weight) per 100 ft^2 for veggies. The laboratory test for potassium came back at 171 ppm (**good level**), with "good" range for veggie growth of 100 – 200 ppm. No extra potassium fertilizer is required.

Potassium comes from the mineralization of the mineral make-up of the soil (rocks) and the biochemical breakdown of organic matter, which usually contains a fairly high amount of potassium. If all the unconsumed plant residues from past gardening and kitchen scraps are used in the composting process, a fairly high amount of potassium will be returned to the soil as plant available potassium with the finished compost. This is the only plant nutrient that plants will take

up in excess of the actual plant physiological requirements.

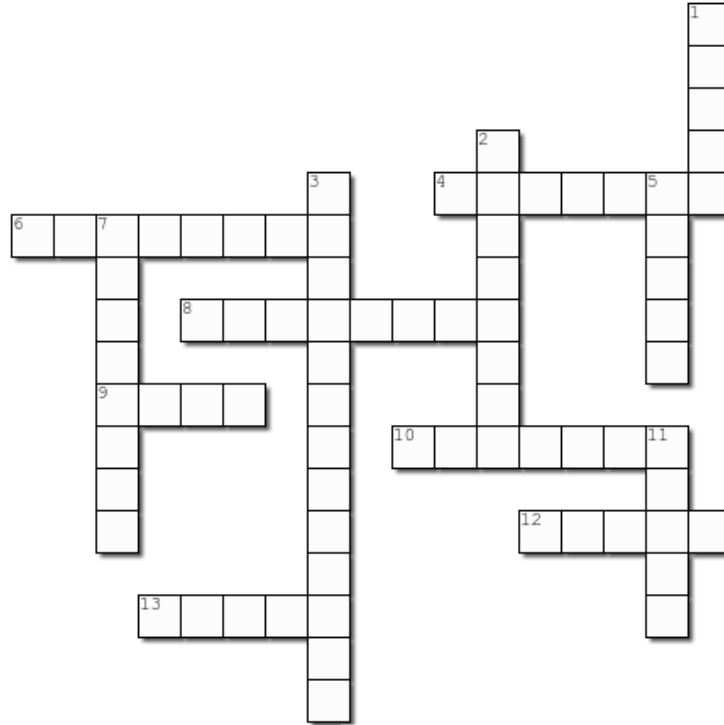
In summary, an over-the-counter soil test kit, while fun and educational, should not be used in place of an actual soil laboratory test for soil pH, nutrient concentrations, or lime and fertilizer recommendations. Results from these kits can and will lead to over- or under-fertilization and improper soil acidity measurement, which can lead to inadequate lime applications leading to a disaster in your garden. Nowhere are there any descriptions of the chemicals used in any of the plastic caps. While directions are clear, the actual safety and health issues related to the contents of the plastic caps are usually described as "safe for domestic use." If you wish to use one as an educational science experiment, do so with kids who are around 10 – 14 years old, with adult supervision. As a precaution, the use of vinyl gloves at the very least to prevent any contamination between tests should be used. When emptying the containers, the use of high volumes of water to dilute the contents before flushing them down the sink would also be a good recommendation. Lastly, a laboratory test for both ammonium and nitrate (2N KCl method), available orthophosphate, ionic potassium and other nutrients (Mehlich III method), active pH (1:1 soil:water by weight method) and a SMP Buffer pH test to determine the lime requirement is always preferred. This is well worth the money for a great garden.

You may contact the author at:
rmvanveldhuizen@alaska.edu, (work)
bob.vgsuared@gmail.com (home), or 909-699-8209 (cell - but I don't always carry the phone around with me).

JULY CROSSWORD PUZZLE

Basic Entomology

Questions and answers to this puzzle were taken from the April 2011 edition of the Alaska Sustainable Gardening, The Alaska Master Gardener Manual, HGA-00339.



Created using the Crossword Maker on TheTeachersCorner.net

Across

4. Knowledge of _____ classification, identification procedures and life cycles is of primary importance.
6. Insects are animals, but unlike many animals, they have no _____.
8. _____ is the arrangement of veins in the insect's wings. It is different for each group of insects.
9. Each segment of the insect's thorax bears a pair of _____.
10. Mouthparts vary in form and function, but they fall into two basic types, _____ and sucking.
12. The names of most insect orders end in the _____ word, 'ptera,' meaning wing.
13. Another important characteristic of insects is the presence of three _____ of jointed legs on the thorax.

Down

1. Most adult insects have one or two pairs of _____.
2. One of the main features of an insect's head are its _____.
3. One of the distinctive features of insects is the phenomenon called _____.
5. An adult insect's body is made up of _____ parts: head, thorax, and abdomen.
7. _____ metamorphosis includes four stages: eggs, larva, pupa and adult
11. If you are uncertain of a pest's identity, do not _____. Insist on seeing the pest.

Answers to June 2020 Puzzle, Annual & Perennial Flowers

Across

3. Some perennials can 'jump the fence' and become _____, spreading into undisturbed areas. (**invasive**)
4. Annuals and biennials are generally started from _____ or purchased as small plants. (**seed**)
7. These plants usually require 2 full years to complete their growth cycle. (**biennial**)
8. _____ perennials won't survive outdoor winter conditions even with protection. (**tender**)
9. _____ are small areas that have a slightly different climate than the surrounding area. (**microclimates**)
11. Trees and shrubs are _____ perennials. (**woody**)
12. Ample _____ is needed to grow stocky, healthy transplants. (**light**)
13. Perennials grow more _____ than annuals. (**slowly**)

Down

1. These plants live one year. (**annual**)
2. These plants live year after year. (**perennial**)
5. The process of removing flowers before they go to seed. (**deadheading**)
6. Most annuals need regular _____ because they don't develop deep root systems. (**water**)
10. Many plants can be propagated from either tip or root _____. (**cuttings**)

Garden Links (updated Nov 2019)

Alaska Botanical Garden

<http://www.alaskabg.org/>

Alaska Center for Conservation Science

<http://aknhp.uaa.alaska.edu/botany/>

Arbor Day Foundation

www.arborday.org

Alaska Division of Agriculture

<http://dnr.alaska.gov/ag/>

Alaska Farm to School

<https://www.farmtoschoolalaska.org/>

Alaska Garden Clubs

<http://www.alaskagardenclubs.org>

Alaska Grown

<http://www.buyalaskagrown.com/>

Alaska Grown Source Book (online)

<http://dnr.alaska.gov/ag/sourcebook/sourcebookindex2016.html>

Alaska Master Gardeners Association, Anchorage

<http://alaskamastergardeners.org/>

Alaska Master Gardener Blog

<https://alaskamastergardener.community.uaf.edu/>

Alaska Native Plant Society

<http://www.aknps.org/>

Alaska Orchid Society

<http://www.akorchid.org/>

Alaska Peony Growers Association

<http://alaskapeonies.org>

Alaska Peony Society

<https://alaskapeonysociety.wixsite.com/alaskapeonysociety>

Alaska Pioneer Fruit Growers Association

<http://www.apfga.org/>

Alaska Plant Materials Center

<http://plants.alaska.gov/>

Alaska Rhodiola

<https://www.akroseroot.com/>

Alaska Rock Garden Society

<http://www.akrockgardensociety.org/>

Good Earth Garden School

<http://ellenvandevisse.com/>

Grow Palmer

<http://growpalmer.org/>



Integrated Pest Management Program

<http://www.uaf.edu/ces/ipm/>

Junior Master Gardener

<http://www.jmgkids.us/>

Landscape Plants for Alaska

www.alaskaplants.org

Mat-Su Borough Rain Garden Program

<http://www.matsugov.us/environment/raingardens>

Mat-Su Master Gardener Website

www.matsumastergardeners.com

Master Gardener Research Link (Extension)

<http://search.extension.org>

Master Gardeners of the Tanana Valley

<https://fairbanksmastergardeners.wordpress.com/>

Palmer Soil & Water Conservation

<http://palmeroilandwater.org/>

South-Central Alaska Beekeepers Assoc.

<http://www.sababeekeepers.com/>

Southeast Alaska Master Gardeners Association

<http://seak-mastergardeners.org/index.html>

Sustainable Agriculture – UAF

<http://www.uaf.edu/ces/ah/sare/>

UAF Cooperative Extension Service

<https://www.uaf.edu/ces/>

UAF Cooperative Extension Service Publications

<http://www.uaf.edu/ces/pubs/catalog/>

UAF CES Citizen Pest Monitoring Portal

<https://pestreporter.alaska.edu/>

UAF Georgeson Botanical Garden

<http://www.georgesonbotanicalgarden.org/>

UAF Herbarium

<http://www.uaf.edu/museum/collections/herb/>

UAF Alaska Master Gardener Program

<https://www.uaf.edu/ces/garden/mastergardeners/>

UAF School of Natural Resources & Extension

<http://www.uaf.edu/snre/>

University of Saskatchewan Fruit Program

www.fruit.usask.ca

USDA/NRCS Plant Data Base

<https://plants.sc.egov.usda.gov/>

VOLUNTEER OPPORTUNITIES

- Volunteer to serve on the Board of Directors or as an officer for 2021.
- Volunteer to chair one of our committees or serve on a committee. There are several vacancies for chairs and most all will need members to help.
- Volunteer as the State Master Gardener Conference Committee chair.

CLUB CONTACT INFO

President:	Deb Blaylock	746-6045/kdblalock@ak.net
Vice President	Gregory Kalal	339-1966
Secretary:	Carolyn Johnson	619-857-6614
Treasurer:	Cathy Crew	632-4401
Member at Large:	Marge Mueller	745-6144

If you have gardening news, photos or information you'd like to share in the newsletter, please send to the MMGA email.

Website: www.matsumastergardeners.com/

Email: matsumastergardeners@gmail.com

CALENDAR OF EVENTS

JULY 2020

Jul 11, Palmer Midsummer Garden and Art Faire
Jul 22, Summer Members-Only Garden Tour, High Tunnels, Gardens & a Root Cellar and Alpine Plants

AUGUST 2020 AND BEYOND

Sep 14, Palmer, MMGA meeting, TBD
Oct 5, Palmer, MMGA meeting, TBD
Nov 2, Palmer, Annual MMGA meeting, TBD
Dec 7, Palmer, Christmas Party

Take a moment and go to our webpage and admire the great photos our web mistress posted of our two summer planting projects! Thank you, Eva!

<https://www.matsumastergardeners.com/photos.html>

Club Membership

The membership year runs from January to December each year. Annual individual memberships are \$15 and family memberships are \$20. Family memberships are only for family members living in the same household. The deadline to join is January 15, 2020 to be listed in the annual membership directory.

Join or renew online

Thank you

How and What to Submit for the Monthly Newsletter

Your submissions are greatly appreciated and make our newsletter what it is - so don't be shy about submitting items for publication.

However, there are a few rules which we all must pay attention to:

Articles, stories, poetry, upcoming events, and pictures (garden-related) are gladly accepted for inclusion in the newsletter. Please submit pictures in JPEG format and other items in Word format with no special formatting other than paragraphs. When submitting pictures, please provide a brief caption or explanation as to who or what is in the picture. I do not have a scanner to copy pictures, so I cannot accept hard copies.

If you are not the author or photographer, please ensure you have permission of the author or photographer to use their material in the newsletter. The newsletter publisher is not responsible for obtaining this for you.

Please do not provide magazine articles or pictures from the internet unless they are public domain items.

Deadline for submission of articles and info: 20th day of each month -- Thank you--



July 2020



Like us on
Facebook

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Email: matsumastergardeners@gmail.com

**MAT-SU MASTER GARDENERS
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