Growing plants from different countries in our Mojave Desert gardens adds interest with color and texture and can be relatively easy. One example is Soap Aloe which was previously known as *Aloe saponaria* and now has the accepted name of *Aloe maculata* meaning speckled or marked. Originally from Africa, the name came from the Latin "sapo" meaning soap, as the sap makes a soapy lather in water. This succulent has thick dark green leaves with coarsely-toothed margins. Thick points at the end of the leaves and distinctive white spots refer to another common name, Zebra Aloe. Too much sun or cold will make foliage turn reddish tinge and the teeth margins brown. Soap aloe grows as a main rosette to a foot wide and a foot tall and produces offsets around its margin. A single plant will expand considerably forming a low growing evergreen clump. Hardy to 32 degrees F, I cover mine when it’s predicted to get below freezing and have had good survival rates even when temperatures get into the low twenties. When damaged it recovers quickly. For best results plant Soap Aloe in shade to partial sun and in well-draining soil. Hummingbirds, butterflies, and bees are attracted to clusters of tubular coral-colored flowers which rise on stalks 1/2 to 3ft tall with blooms spring through early summer. Maintenance on this plant is minimal with removal of spent flower stalks and thinning of colonies if desired. Although this plant is used for the “soap” from the leaves, the seeds are poisonous if ingested. Do not confuse with the medicinal Aloe Vera (*Aloe barbadensis*). Soap Aloe is a useful plant that can be used in a landscape, succulent gardens, in pots, or as a groundcover under trees.
Companion Planting

Adding basil to your garden does more than provide a fresh supply of the tasty herb, it is also a great companion plant for a number of vegetables and other herbs.

Basil makes a great companion plant because it attracts butterflies to your garden and repels many harmful insects. It is said that basil repels aphids, asparagus beetles, mosquitoes, tomato hornworms and white flies. Aphids go after young basil plants. Basil is also reputed to slow the growth of milkweed bugs.

Insect control with basil may be improved by avoiding overhead irrigation, increasing organic matter in the soil and ensuring the basil plants are not overcrowded.

Biotic vs. Abiotic by Paula Flynn

Biotic plant problems are caused by living organisms, such as fungi, bacteria, viruses, nematodes, insects, mites, and animals. Abiotic disorders are caused by nonliving factors, such as drought stress, sunscald, freeze injury, wind injury, chemical drift, nutrient deficiency, or improper cultural practices, such as overwatering or planting too deep. Unfortunately, the damage caused by these various living and nonliving agents can appear very similar. Even with close observation, accurate diagnosis can be difficult. For example, browning of leaves on an oak tree caused by drought stress may appear similar to leaf browning caused by oak wilt, a serious vascular disease, or the browning cause by anthracnose, a fairly minor leaf disease. (Continued on page 3)

May Reminders

1. Adjust sprinkler timer for summer.
2. Check tomato plants regularly for hornworms.
3. Deep water trees and shrubs weekly.
4. Lightly prune desert legumes.
5. Fertilize iris one last time then leave alone the rest of the summer.
6. Apply mulch to the ground around trees and heat sensitive plants.
7. Plant hybrid Bermuda in May and fertilize before it gets too hot.
8. Water early in the morning to minimize mildew.
9. Fertilize palms this month.
10. Repot houseplants that are rootbound.
11. Fertilize flower beds once a month.
12. Sow seeds of zinnia, tithonia, cosmos, coreopsis, globe amaranth, portulaca, and marigold.
14. Fertilize citrus this month.
15. Make and use your own compost.

Basil Pesto

Combine 2 cups basil, 2 cloves garlic, and ¼ cup pine nuts in a food processor and pulse until coarsely chopped. Add 2/3 cup extra virgin olive oil and process until fully incorporated and smooth. Season with kosher salt and freshly ground black pepper, to taste. Transfer the pesto to a large serving bowl and mix in 1/2 cup freshly grated parmesan cheese.

Serve on bread, pasta, meatballs, burgers, pizza, fritters, corn, sweet potatoes, tortellini, ravioli, salad, mussels, green beans, chicken salad, egg salad or tuna salad, croutons, crusty bread, grilled cheese, tomato soup, quesadilla, fried chicken, chicken wings, lamb kebabs, steak, fish, bean soup, cornbread, french fries, and just about anything edible! Yum!!

Upcoming Volunteer Opportunities:

- Fair Garden
- MG Meetings
- Newsletter Article
- Yard clean-up at UNCE
- Mesquite Heritage Garden clean-up

Companion Planting

Adding basil to your garden does more than provide a fresh supply of the tasty herb, it is also a great companion plant for a number of vegetables and other herbs.

Basil makes a great companion plant because it attracts butterflies to your garden and repels many harmful insects. It is said that basil repels aphids, asparagus beetles, mosquitoes, tomato hornworms and white flies. Aphids go after young basil plants. Basil is also reputed to slow the growth of milkweed bugs.

Insect control with basil may be improved by avoiding overhead irrigation, increasing organic matter in the soil and ensuring the basil plants are not overcrowded.

Biotic vs. Abiotic by Paula Flynn

Biotic plant problems are caused by living organisms, such as fungi, bacteria, viruses, nematodes, insects, mites, and animals. Abiotic disorders are caused by nonliving factors, such as drought stress, sunscald, freeze injury, wind injury, chemical drift, nutrient deficiency, or improper cultural practices, such as overwatering or planting too deep. Unfortunately, the damage caused by these various living and nonliving agents can appear very similar. Even with close observation, accurate diagnosis can be difficult. For example, browning of leaves on an oak tree caused by drought stress may appear similar to leaf browning caused by oak wilt, a serious vascular disease, or the browning cause by anthracnose, a fairly minor leaf disease. (Continued on page 3)

May Reminders

1. Adjust sprinkler timer for summer.
2. Check tomato plants regularly for hornworms.
3. Deep water trees and shrubs weekly.
4. Lightly prune desert legumes.
5. Fertilize iris one last time then leave alone the rest of the summer.
6. Apply mulch to the ground around trees and heat sensitive plants.
7. Plant hybrid Bermuda in May and fertilize before it gets too hot.
8. Water early in the morning to minimize mildew.
9. Fertilize palms this month.
10. Repot houseplants that are rootbound.
11. Fertilize flower beds once a month.
12. Sow seeds of zinnia, tithonia, cosmos, coreopsis, globe amaranth, portulaca, and marigold.
14. Fertilize citrus this month.
15. Make and use your own compost.

Basil Pesto

Combine 2 cups basil, 2 cloves garlic, and ¼ cup pine nuts in a food processor and pulse until coarsely chopped. Add 2/3 cup extra virgin olive oil and process until fully incorporated and smooth. Season with kosher salt and freshly ground black pepper, to taste. Transfer the pesto to a large serving bowl and mix in 1/2 cup freshly grated parmesan cheese.

Serve on bread, pasta, meatballs, burgers, pizza, fritters, corn, sweet potatoes, tortellini, ravioli, salad, mussels, green beans, chicken salad, egg salad or tuna salad, croutons, crusty bread, grilled cheese, tomato soup, quesadilla, fried chicken, chicken wings, lamb kebabs, steak, fish, bean soup, cornbread, french fries, and just about anything edible! Yum!!

Upcoming Volunteer Opportunities:

- Fair Garden
- MG Meetings
- Newsletter Article
- Yard clean-up at UNCE
- Mesquite Heritage Garden clean-up

Biotic vs. Abiotic by Paula Flynn

Biotic plant problems are caused by living organisms, such as fungi, bacteria, viruses, nematodes, insects, mites, and animals. Abiotic disorders are caused by nonliving factors, such as drought stress, sunscald, freeze injury, wind injury, chemical drift, nutrient deficiency, or improper cultural practices, such as overwatering or planting too deep. Unfortunately, the damage caused by these various living and nonliving agents can appear very similar. Even with close observation, accurate diagnosis can be difficult. For example, browning of leaves on an oak tree caused by drought stress may appear similar to leaf browning caused by oak wilt, a serious vascular disease, or the browning cause by anthracnose, a fairly minor leaf disease. (Continued on page 3)

May Reminders

1. Adjust sprinkler timer for summer.
2. Check tomato plants regularly for hornworms.
3. Deep water trees and shrubs weekly.
4. Lightly prune desert legumes.
5. Fertilize iris one last time then leave alone the rest of the summer.
6. Apply mulch to the ground around trees and heat sensitive plants.
7. Plant hybrid Bermuda in May and fertilize before it gets too hot.
8. Water early in the morning to minimize mildew.
9. Fertilize palms this month.
10. Repot houseplants that are rootbound.
11. Fertilize flower beds once a month.
12. Sow seeds of zinnia, tithonia, cosmos, coreopsis, globe amaranth, portulaca, and marigold.
14. Fertilize citrus this month.
15. Make and use your own compost.

Basil Pesto

Combine 2 cups basil, 2 cloves garlic, and ¼ cup pine nuts in a food processor and pulse until coarsely chopped. Add 2/3 cup extra virgin olive oil and process until fully incorporated and smooth. Season with kosher salt and freshly ground black pepper, to taste. Transfer the pesto to a large serving bowl and mix in 1/2 cup freshly grated parmesan cheese.

Serve on bread, pasta, meatballs, burgers, pizza, fritters, corn, sweet potatoes, tortellini, ravioli, salad, mussels, green beans, chicken salad, egg salad or tuna salad, croutons, crusty bread, grilled cheese, tomato soup, quesadilla, fried chicken, chicken wings, lamb kebabs, steak, fish, bean soup, cornbread, french fries, and just about anything edible! Yum!!

Upcoming Volunteer Opportunities:

- Fair Garden
- MG Meetings
- Newsletter Article
- Yard clean-up at UNCE
- Mesquite Heritage Garden clean-up

Biotic vs. Abiotic by Paula Flynn

Biotic plant problems are caused by living organisms, such as fungi, bacteria, viruses, nematodes, insects, mites, and animals. Abiotic disorders are caused by nonliving factors, such as drought stress, sunscald, freeze injury, wind injury, chemical drift, nutrient deficiency, or improper cultural practices, such as overwatering or planting too deep. Unfortunately, the damage caused by these various living and nonliving agents can appear very similar. Even with close observation, accurate diagnosis can be difficult. For example, browning of leaves on an oak tree caused by drought stress may appear similar to leaf browning caused by oak wilt, a serious vascular disease, or the browning cause by anthracnose, a fairly minor leaf disease. (Continued on page 3)

May Reminders

1. Adjust sprinkler timer for summer.
2. Check tomato plants regularly for hornworms.
3. Deep water trees and shrubs weekly.
4. Lightly prune desert legumes.
5. Fertilize iris one last time then leave alone the rest of the summer.
6. Apply mulch to the ground around trees and heat sensitive plants.
7. Plant hybrid Bermuda in May and fertilize before it gets too hot.
8. Water early in the morning to minimize mildew.
9. Fertilize palms this month.
10. Repot houseplants that are rootbound.
11. Fertilize flower beds once a month.
12. Sow seeds of zinnia, tithonia, cosmos, coreopsis, globe amaranth, portulaca, and marigold.
14. Fertilize citrus this month.
15. Make and use your own compost.
“You know you’re a Master Gardener if you think manure would make a fine birthday present.”

### Organic Pest Control

<table>
<thead>
<tr>
<th>Weeds – Mix together</th>
<th>Radish</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/3 cup vinegar, 1/3 cup lemon juice, and 5 cups water. Spray on weeds for a rapid foliage kill. Dilute to effectively kill deep plant roots.</td>
<td>Squash, summer</td>
</tr>
<tr>
<td>Scales – Mix 2 tablespoons baking soda, ½ teaspoon olive oil, 1 teaspoon dish soap with 2 gallons water. Spray on scales weekly.</td>
<td>Sunflower</td>
</tr>
<tr>
<td>Insecticidal, Nematicidal and Fungicidal Spray – Concentrate: mash 4 ounces garlic with 2 tablespoons mineral oil and soak overnight. Add 1 pint of water to 2 drops of dish soap and combine with garlic oil. Store concentrate in a glass jar. Add 1 pint water to 2 tablespoons concentrate to make a spray.</td>
<td>Sweet Potatoes</td>
</tr>
<tr>
<td></td>
<td>Tithonia</td>
</tr>
<tr>
<td></td>
<td>Tomatillo</td>
</tr>
<tr>
<td></td>
<td>Watermelon</td>
</tr>
<tr>
<td></td>
<td>Zinnia</td>
</tr>
</tbody>
</table>

---

### May Planting

<table>
<thead>
<tr>
<th>Biotic vs. Abiotic (continued from page 2)</th>
</tr>
</thead>
</table>

When the cause of a plant health problem is not readily diagnosed, it's important to take a systematic approach and carefully consider site conditions, weather conditions, care of the plant, and the known biotic disease agents of that plant. The first important step is to determine the identity of the plant and its requirements for healthy growth.

There are a few clues to look for that will help you distinguish between abiotic and biotic disease problems.

- Abiotic damage often occurs on many plant species. Drought stress or chemical drift will likely cause damage on several types of plants in a yard or garden. In contrast, biotic disease problems are more limited to a certain species. The fungi that cause tomato leaf blight do not cause damage on sweet corn, for example.

- Abiotic damage does not spread from plant to plant over time. Biotic diseases can spread throughout one plant and also may spread to neighboring plants of the same species. Wind-blown rain is a common way for disease agents to spread from plant to plant.

- Biotic diseases sometimes show physical evidence (signs) of the pathogen, such as fungal growth, bacterial ooze, or nematode cysts, or the presence of mites or insects. Abiotic diseases do not show the presence of disease signs.

An important take-home message is to remember that there may be several factors, abiotic and biotic, contributing to a plant health problem. For example, older trees that are stressed by drought conditions are often troubled by fungal canker diseases. Another example is the presence of decay fungus at the base of the tree. The primary problem may have been mower damage, which subsequently allowed entry of the fungus. The identification of the primary problem and other contributing factors is a necessary step in managing the problem or avoiding it in the future.

Follow these simple steps to diagnose your plants disorder and ultimately help your plant to thrive and produce.

1. Accurately identify the plant:
   a. What is the common name?
   b. What is the variety or cultivar? (you may have a variety that does not grow well in our valley)
   c. How old is the plant? (Some plants don't live long)

2. Initial examination:
   a. Look for a pattern of abnormality.
   b. Carefully examine the site.
   c. Note the color, size, and thickness of the foliage.
   d. Check the entire plant.
   e. Examine the roots.
   f. Look under the leaves.
   g. Tap leaves over a sheet of white paper to see if insects fall off.

3. Investigate symptom progression:
   You want to know if the problem is a result of a living (biotic) or nonliving (abiotic) factor. Usually biotic diseases spread throughout the plant and from plant to plant as the pathogen reproduces and attacks new tissue. Abiotic problems tend not to spread this way.
   Are the symptoms present on just one species or variety of plant? If plants from many different families were affected, such as lettuce, tomatoes, flowers and turnips, then it is more likely to be an abiotic problem.

4. Check for signs and symptoms of plant pathogens and diseases:
   Signs are the actual plant pathogen visible on the symptomatic plant—for example, masses of powdery mildew spores. Symptoms are changes in the appearance of the plant in response to infection by the pathogen (e.g., wilting or chlorosis).

5. Consider possible environmental causes:
   a. Temperature extremes
   b. Drought or excess rain
   c. Soil types and conditions
6. Review cultural practices:
   a. Proper planting technique
   b. Fertilizer and pesticide application
   c. Irrigation frequency

7. Asks questions:
   a. What are the problems?
   b. What are the symptoms?
   c. Are all species affected?
   d. How often AND how much water is applied?
   e. What pesticides and herbicides have been used and how much?
   f. Are pests or eggs present?
   g. Do you see signs of disease?
   h. Do you see symptoms of disease?
   i. What is around the area that might have caused the problem?
   j. When was the problem noticed?
   k. Was the damage sudden or gradual?
   l. How old are affected plants?
   m. Percentage of plants affected?
   n. What is the degree of injury?

8. Consult literature resources for possible diseases, disorders, and proper growing conditions for your variety. Look for the problem that answers your questions.

   Many resources may list common pathogens and disorders for different types of plants. Review a resource that is specific to your geographic area. You are unlikely to have a plant disease that is only found in Florida in your garden in Southern Nevada. When searching the internet change your search criteria to search for only .edu cites, this way you will be finding scholarly information and not just random guesses.

9. Final Diagnosis
   a. Be confident in your diagnosis
   b. Design a management strategy
   c. Come up with options
   d. Can the problem be managed by cultural practices alone?
   e. Are chemicals necessary? Organic vs Synthetic?
A Note from Denise

In order to perform a good plant diagnosis and send off a plant or pest sample to the Department of Agriculture a few items that are handy to have might be: hand lens or magnifying glass; pocket knife; soil probe; shovel; small notebook and pencil; plastic baggies; small saw and hand pruners; paper towels; and a moisture meter.

When sending off your sample to the Department of Agriculture a few simple steps that are important to ensure your sample arrives in good shape to be tested are:

PLANTS: keep soil on roots; don’t add extra water; wrap plant in dry paper then double bag in plastic; disinfect exterior of bags; use strong crush-proof box and tape all seams; avoid dead plants; choose plants which show a range of symptoms; use a plastic bag to keep soil on roots; use dry paper towels to protect leaves from contact with plastic bag.

INSECT: preserve most insects in a vial with 70% isopropyl (rubbing) or ethyl alcohol; scales, mealybugs and other tiny arthropods may be submitted on the host plant; wrap plant material in dry paper towel before placing in bag; double bag suspected exotic pests; collect multiple samples of all available life stages; send extra samples if available; may need specific life stage or both sexes for identification; digital photos of damage and insect assist with identification; describe the level of infestation on the plant.

The University of Nevada, Reno is an Equal Opportunity/Affirmative Action employer and does not discriminate on the basis of race, color, religion, sex, age, creed, national origin, veteran status, physical or mental disability, or sexual orientation, in any program or activity it operates. The University of Nevada employs only United States citizens and those aliens lawfully authorized to work in the United States.