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**The Medicinal Botanicals Program**  
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## 2009 MSU/WVHA Spring Conference, Plan to Attend

The Mountain State University Medicinal Botanicals Program and the West Virginia Herb Association cordially invite you to attend their 2009 Spring Conference to be held at O'Dell Hall, Mountain State University Beckley campus, on May 2, 2009 with the theme *Medicinal Plant Applications*. The conference is being sponsored by the USDA Agricultural Research Service.

Since the beginning, man has relied on medicinal plants to treat his health problems. Through trial and error, he was able to discover plants with unique curative powers. This knowledge, accumulated through thousands of years, form the traditional medicines that we see in existence today and that are used by billions of people around the world.

The organizers made every effort to find speakers with experience in the areas of herb and aromatic and medicinal plant preparation and utilization. The speakers, five with PhD degree, have years of experience investigating the medicinal properties of plants and the ways to use them.

### Schedule (see [page 5](#))

This year's Spring Conference stresses medicinal plant applications. Topics are varied and include: Aromatherapy, Energy Medicine; Herbs for Women's Health Issues;



Aphrodisiacs; Herbs for Diabetes Mellitus, Menopause, Cancer, and Obesity; Natural Cosmetics; Planting According to Moon Phases; Pain and Inflammation; Flower Essences; Diabetes and Diet; Kitchen Herbs; Healing Teas and Tinctures; and Cooking with Herbs.

### Registration for Participants

Cost: \$50. Please make check or money order payable to Mountain State University and mail it with form (on [page 6](#)) to:

Mountain State University  
Medicinal Botanicals Program  
P.O. Box 9003  
Beckley, WV 25802-9003

### Registration for Vendors

This is a great opportunity for vendors to promote their trade and create links for market development. The number of tables is limited so we encourage you to reserve early (Form on [page 6](#)). Tables cost \$10 ea if reserved before April 15<sup>th</sup>, and \$15 ea if reserved

after April 15<sup>th</sup>. Fees are not refundable.

### Lodging

Beckley has an abundance of hotels. Here are two that are affordable and close to campus:

Budget Inn  
223 S Heber St; 304.253.8318

Microtel Inn & Suites  
200 Woodlawn Ave; 304.255.2200

The intersection of Harper Road and I-64/I-77 has several hotels; here is information for two of them:

Holiday Inn  
114 Dry Hill Rd; 304.252.2250

Super 8 Motel  
2014 Harper Rd; 304.253.0802

### Contact for Information

Dean Myles, 304.929.1687,  
email: [dmyles@mountainstate.edu](mailto:dmyles@mountainstate.edu).

Information and forms also at [www.mountainstate.edu/usda](http://www.mountainstate.edu/usda) or [www.WVHERB.org](http://www.WVHERB.org).

## The Herbal Dispatch

A monthly publication of the Medicinal Botanical Program

The goal of this newsletter is to inform readers of the Program's educational, research and outreach activities and events; and of results of the latest research on the chemistry, cultivation, processing and preventive and therapeutic use of botanicals.

The views expressed in The Herbal Dispatch are those of the authors and do not necessarily reflect those of MSU or the Medicinal Botanical Program staff. Authors are solely responsible for their articles.

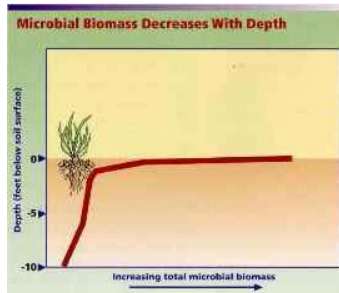
Mario R. Morales  
Editor/Publisher

## The Soil Biology Primer-Part III

By Dr. Elaine R. Ingham  
Oregon State University

### Where do soil organisms live?

The organisms of the food web are not uniformly distributed through the soil. Each species and group exists where they can find appropriate space, nutrients, and moisture. They occur wherever organic matter occurs – mostly in the top few inches of soil (see figure), although microbes have been found as deep as 10 miles (16 km) in oil wells.



Soil organisms are concentrated:

**Around roots.** The rhizosphere is the narrow region of soil directly around roots (see photo). It is teeming with bacteria that feed on sloughed-off plant cells and the proteins and sugars released by roots. The protozoa and nematodes that graze on bacteria are also concentrated near roots. Thus, much of the nutrient cycling and disease suppression needed by plants occurs immediately adjacent to roots.

**In litter.** Fungi are common decomposers of plant litter because litter has large amounts of complex, hard-to-decompose carbon. Fungal hyphae (fine filaments) can “pipe” nitrogen from the



Bacteria are abundant around this root tip (the rhizosphere) where they decompose the plentiful simple organic substances. *Credit: No. 53 from Soil Microbiology and Biochemistry Slide*

underlying soil to the litter layer. Bacteria cannot transport nitrogen over distances, giving fungi an advantage in litter decomposition, particularly when litter is not mixed into the soil profile. However, bacteria are abundant in the green litter of younger plants which is higher in nitrogen and simpler carbon compounds than the litter of older plants. Bacteria and fungi are able to access a larger surface area of plant residue after shredder organisms such as earthworms, leaf-eating insects, millipedes, and other arthropods break up the litter into smaller chunks.

**On humus.** Fungi are common here. Much organic matter in the soil has already been decomposed many times by bacteria and fungi, and/or passed through the guts of earthworms or arthropods. The resulting humic compounds are complex and have little available nitrogen. Only fungi make some of the enzymes needed to degrade the complex compounds in humus.

**On the surface of soil aggregates.** Biological activity, in particular that of aerobic bacteria and fungi, is greater

near the surfaces of soil aggregates than within aggregates. Within large aggregates, processes that do not require oxygen, such as denitrification, can occur. Many aggregates are actually the fecal pellets of earthworms and other invertebrates.

**In spaces between soil aggregates.** Those arthropods and nematodes that cannot burrow through soil move in the pores between soil aggregates. Organisms that are sensitive to desiccation, such as protozoa and many nematodes, live in water-filled pores. (See Figure page 1.)

### When are they active?

The activity of soil organisms follows seasonal patterns, as well as daily patterns. In temperate systems, the greatest activity occurs in late spring when temperature and moisture conditions are optimal for growth (see graph). However, certain species are most active in the winter, others during dry periods, and still others in flooded conditions.

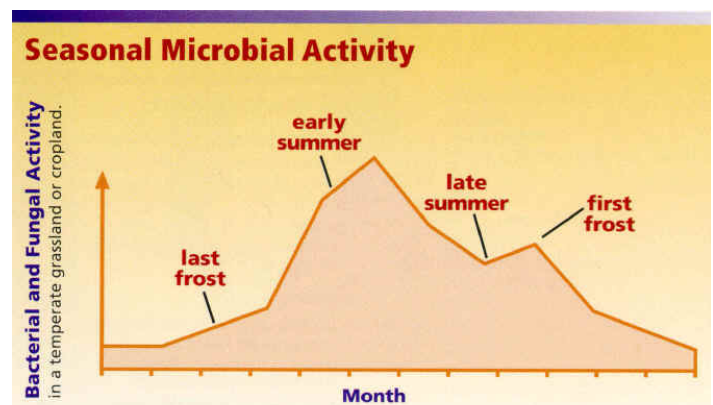
Not all organisms are active at a particular time. Even during periods of high activity, only a fraction of the organisms are busily eating, respiring, and

altering their environment. The remaining portion are barely active or even dormant.

Many different organisms are active at different times, and interact with one another, with plants, and with the soil. The combined result is a number of beneficial functions including nutrient cycling, moderated water flow, and pest control.

### The importance of the soil food web

The living component of soil, the food web, is complex and has different compositions in different ecosystems. Management of croplands, rangelands, forestlands, and gardens benefits from and affects the food web. The next unit of the Soil Biology Primer, “The Food Web & Soil Health,” introduces the relationship of soil biology to agricultural productivity, biodiversity, carbon sequestration and to air and water quality. The remaining six units of the Soil Biology Primer describe the major groups of soil organisms: bacteria, fungi, protozoa, nematodes, arthropods, and earthworms. For more information about the diversity within each organism group, see the list of readings at the end of “The Food Web & Soil Health” unit.



## Feverwort (*Triosteum perfoliatum* L.)

**By David C. Carman  
Grower and Collector  
Princeton, West Virginia**

This rather common native perennial, belonging to the honeysuckle family (Caprifoliaceae), is also known as wild coffee and tinker's weed. It may be found growing in rich, moist woodlands in the eastern US.

Feverwort is an odd looking plant that draws attention to itself for a second and closer look by those who have never seen it. With a single annual

stem growing to four and a half feet in height, opposite perfoliate, lanceolate leaves, and the trait of growing flowers (three quarter inch, greenish/purple) and fruit (yellowish/orange berries) from the leaf-stem axils on the upper portion of the stem. The fruit berries contain three hard seeds which have been used as a coffee substitute, once they have been dried, roasted, and ground.

Native Americans used root tea to treat irregular to profuse menses, colds, sore throat,

urinary problems, and constipation. Poulticed was used for snakebites, felons, and sores. Leaf tea was used to induce sweating. Physicians historically used the root to treat rheumatism, headaches, indigestion, colic, diarrhea, and vomiting. In large doses, it is emetic and cathartic.

Closely related species are horse gentian (*T. aurantiacum*) and narrow leaved horse gentian (*T. angustifolium*).



[www.ct-botanical-society.org](http://www.ct-botanical-society.org)

## TCM and Herbal Therapy

Healthy News Service  
February 2009

In Traditional Chinese Medicine (TCM) all things, especially living things, have Qi. Herbal medicinal formulations are not only created to treat specific Qi disorders, each herb and plant has its own Qi, which forms the basis of its mechanism of action. In TCM herbs are categorized by their natural makeup; their Qi. The herbs are described and organized by "Temperature" and "Taste". Herbs are either cold, cool, hot, or neutral, and/or spicy, sweet, and bitter. Herbs are also designated by the four directions, based on quadrants of the body related to the specific areas they treat.

Western medicine tends to ridicule the efficacy of nutritional supplements and herbal medication. However over 50% of so-called modern pharmaceuticals are derived

from botanical substances. There are about 600 different herbs that are most commonly prescribed by Chinese herbalists. Yet the Chinese pharmacopoeia lists over 6,000 different medicinal substances by their properties and by the Qi disturbances they can help to correct.

Unlike other forms of herbal medicine, the Chinese herbalist will rarely prescribe a single herb for the treatment of an illness. Chinese herbs are almost always used in combination. It is the herbalist's ability to diagnose and the skills with which the practitioner creates these formulations that gives the herbs their healing power. Each herb itself is often a mix of temperature and taste, and therefore doesn't possess a single property. It is up to the herbalist to weave them together like the notes of symphony, to deliver a cure.

The traditional way that



Chinese Herbal Medicines are administered is in an infusion, or decoction, a concentrated form of tea. However there are practitioners that will create herbal pills or capsules of herbal formulations. You may find some practitioners, who will also use tinctures and granules, but the tea is still the more common, and some would say the most effective.

Chinese Herbal Medicines are

a pillar of TCM, and therefore are used to treat any and all ailments. However Chinese Herbs have proven to be very effective in treating colds, digestive disorders, arthritis and those who suffer from allergies. There has been a recent and growing interest in the anti-aging benefits of various Chinese Herbs.

Photography courtesy of:  
[chinesemedicalcenter.org](http://chinesemedicalcenter.org)

## Appalachian Plant Profile: Pawpaw

By Dean Myles, Coordinator  
Medicinal Botanicals Program  
Mountain State University

*Asimina triloba* (L.) Dunal., is a small native tree commonly known as pawpaw, the largest edible tree fruit native to the United States [1]. This moderate-growing short-lived deciduous tree commonly reaches a height between 25 and 35 feet [2]. Pawpaw has an alternating leaf and twig arrangement. The simple entire leaves are obovate to oblong in shape. They are 10-12 inches in length, 4-6 inches wide. The leaf apex is acute and the base is wedge-shaped. The leaves admit a foul odor when crushed or bruised. The brown twigs are slender, pubescent with diaphragmed pith. The terminal bud is present [2]. The ½-inch bud is flat, elongated without bud scales (naked), rust colored and pubescent. The bark of pawpaw is thin and smooth but becomes warty with age. The bark can be brown to gray in color with gray blotches. The large perfect flowers have 3 sepals and 6 purple petals. The flowers emerge with the leaves [3]. The edible fruit is an oblong yellow banana-like berry 3 to 5 inches long. The fruit contains several brown flattened seeds. The fruit ripens in September [3].

The wood of pawpaw is light, soft, coarse-grained, and weak

with no economic importance [3]. Pawpaw fame comes from its fruit. The fruit is edible by humans and consumed by many birds and mammals, including raccoons, gray foxes, opossums, squirrels, and black bears. The fruit is not considered to be edible until after the first frost of the fall when the fruit turns a dark color. The Native Americans including the Cherokee and Iroquois tribes utilized pawpaw fruits as food [4]. The unripe fruit have been used as a laxative. The leaves are considered diuretic. The leaves have been applied externally to boils, ulcers and abscesses. The seed contains the alkaloid asiminine, which is emetic and narcotic. The seeds are powdered and applied to hair to kill lice. The bark contains the alkaloid analobine, which is used medicinally. A fiber from the inner bark can be used for making strong rope and string. The seed has insecticidal properties. Today, an anticancer drug purified from pawpaw is being tested.

Pawpaw is found in deciduous forests, on slopes of ravines, along streams, and floodplains [2]. Pawpaw prefers a deep, rich, damp, sandy, or loamy soil with a pH range of 6.0 to 6.8 [1, 2]. Vegetative reproduction by root suckering is the most important method of pawpaw regeneration due to its low seed germination rate. If



propagating from seed stratification is a must. Seeds should be refrigerated (32° to 40°F) for 80 to 120 days to induce germination [1]. Stratified seeds should be sown in a well-aerated soil mix, with an optimum temperature of 75° to 85°F. Use tree pot containers 14 to 18 inches deep that will allow room for taproot formation. Seeds will germinate in two to three weeks, however the taproot forms first followed by the shoot in one or two months. Pawpaw is considered secure within its natural range with the exception of New Jersey where it is listed as “endangered” and New York where it is listed as “threatened” [5]. Remember to contact your local native plant program or the National Plants Database at <http://plants.usda.gov/> for species status.

### References

1. Bratsch A. **Specialty Crop Profile: Pawpaw** Virginia Cooperative Extension Publication Number 438-105.

Accessed on 3/3/09 at <http://www.ext.vt.edu/pubs/fruit/438-105/438-105.html#L11>

2. Preston, R. Jr. 1989 **North American Trees 4<sup>th</sup> Ed.** Iowa State University Press. Ames, IA
3. Sullivan, Janet. 1993. *Asimina triloba*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/databases/feis/> [2009, March 3].
4. Native American Ethnobotanical Database *Sassafras albidum* University of Michigan-Dearborn Accessed on 5/12/08 at <http://herb.umd.umich.edu/>
5. USDA Plants Database *Asimina triloba* Accessed 3/3/09 at <http://plants.usda.gov>

Photography courtesy of: Kirk Pomper, at <http://www.pawpaw.kysu.edu/photoal/Fruit2.htm>

## Schedule–2009 MSU/WVHA Spring Conference\*

MSU/WVHA Spring Conference: Medicinal Plant Applications  
 May 2, 2009  
 O'Dell Hall, Mountain State University, Beckley, WV

07:30–09:30	Registration; Vendor Set-up, Room 103	
A.M.	Room 101	Room 102
08:00–08:55	<b>Aromatherapy</b> <i>Terri Johnson</i>	<b>The Art of Timing: Planting, Harvesting, and Processing by the Phases of the Moon</b> <i>Eva Ristl</i>
09:00–09:55	<b>Energy Medicine, Part 1</b> <i>Dr. Linda Geronilla</i>	<b>New Pharmacological Use for an Ancient Herb (<i>Artemisia annua</i>)</b> <i>Dr. Jorge Ferreira</i>
10:00–10:30	Break; Vendor Session, Room 103	
10:30–11:25	<b>Energy Medicine, Part 2</b> <i>Dr. Linda Geronilla</i>	<b>Nature's Answer to Pain and Inflammation</b> <i>David Hawkins, Master Herbalist</i>
11:30–12:25	<b>Women's Health Issues in the Home</b> <i>Elaine Ferry, Nurse Herbalist</i>	<b>Flower Essences</b> <i>Dr. Bonnie Buchman</i>
P.M.		
12:30–01:30	Lunch Break, Room 103	
01:30–02:25	<b>Aphrodisiacs: Everything You Wanted to Know but Were Afraid to Ask.</b> <i>Dr. Hassan Amjad</i>	<b>Herbs for Women's Health</b> <i>Elaine Ferry, Nurse Herbalist</i>
02:30–03:25	<b>Herbalism: What a Herbalist Can Do for Diabetes Mellitus, Menopause, Cancer, and Obesity</b> <i>Dr. Hassan Amjad</i>	<b>Diabetes and Diet</b> <i>Arnie Vaughn, Dietician-Nutritionist, Certified Diabetes Educator</i>
03:30–04:00	Break; Vendor Session, Room 103	
04:00–04:55	<b>Natural Cosmetics—Learn How to Make and Use Them</b> <i>Dr. Hassan Amjad</i>	<b>Kitchen Herbs 101: Vinegars, Oils, and Easy to Grow Herbs</b> <i>Melissa Dennison</i>
05:00–05:55**	<b>Cooking with Herbs</b> <i>Chef Sawsan Galal, MSU School of Culinary Arts</i>	<b>Herbal Preparations: Healing Teas and Tinctures</b> <i>Janice Sumpter</i>
06:00–06:30	Discussion and Conference Closing	

\* Schedule subject to change

\*\* Weather permitting participants may also tour the MSU Medicinal Plants Garden

## Mountain State University

**Medicinal Botanical Program**  
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Beckley, WV 25801

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Phone: (304) 929-1687  
dmyles@mountainstate.edu

**Program's Fax: (304) 929-1640**

**Webpage:**

[www.mountainstate.edu/usda](http://www.mountainstate.edu/usda)

### About the Medicinal Botanical Program

This Program was created as result of a Specific Cooperative Agreement between Mountain State University and the USDA/ARS-Appalachian Farming Systems Research Center in Beaver, WV. The establishment of this agreement came through the efforts of Senator Robert C. Byrd and a Congressional Appropriation.

The mission of the Program is to promote the medicinal plant industry in WV through research, education and outreach. The Program conducts research aimed at the identification and development of native plants as specialty vegetable/forage crops. Educational offerings include symposia, workshops and farm visits.

## Subscriptions

Would you like to receive this newsletter? Subscriptions are free and subscribing is easy. Just send us your name, address and e-mail (if available). We provide electronic and printed versions of the newsletter; indicate which one you would prefer by sending an electronic message to: mmorales@mountainstate.edu

Or a letter request to:

Mountain State University  
Medicinal Botanicals Program  
P.O. Box 9003  
Beckley, WV 25801-9003

## Ramps Book Available

This book, *Having Your Ramps and Eating Them Too*, was prepared to cover every major subject that would be a help to anyone that has any interest in ramps.

The life cycle of ramps from the seed to the matured plant will familiarize you with this wonderful herb to the extent you will know when to harvest them or take the seeds or bulbs for planting or just to recognize them at anytime of the year.

This 148-page book is presented with gloss enamel paper that lends itself to present the many pictures in top quality style.

It contains chapters covering subjects such as: Ramps Seeds, Ramp Bulbs, Ramp Digging, Growing Your Own Ramps, Shipping Ramps, Dehydrating Ramps, Ramp Recipes, Ramp Humor, Ramp Misconceptions and the Preservation of Ramps.

There is a chapter by Dr. Phil Whanger on 'Looking into the Future'. This section is concerning the medical aspect of selenium enriched ramps. This will be of great interest to anyone who can appreciate the prospect of using ramps for medical purposes.

The author has given his years of experience with ramps to write this book. He has rendered a book on ramps that tells it all and is presented in a simple to understand way.

## Contributions

Dear reader:

Would you like to share your knowledge, skills and experience with us? Do you know how to produce, process, market and/or use herbs and medicinal plants?

Would you like to share this knowledge with our readers? It is quite simple. Just write your ideas on a piece of paper and mail it to us. We will type it and make sure that it gets published in our newsletter.

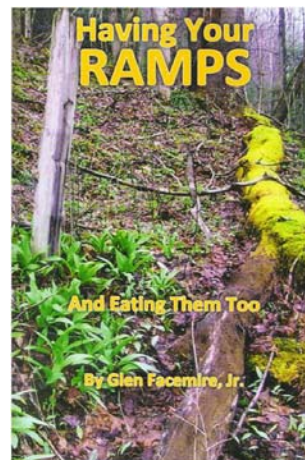
Please send contributions to the addresses indicated above.

The book has been endorsed by: Gus Douglas, WV Agricultural Commissioner; Dr. Jeanine Davis, North Carolina State University, Asheville, NC; and Dr. Mario Morales, Mountain State University, Beckley, WV.

Cost: \$14.95 plus \$3.00 shipping (WV residents add \$0.85 for sales tax).

To order, make check or money order payable to Ramp Farm Specialties and send it to:

Ramp Farm Specialties, P.O. Box 48, Richwood, WV 26261



## Forms—2009 MSU/WVHA Spring Conference

### PARTICIPANT REGISTRATION FORM

**Name:** \_\_\_\_\_

**Company:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**City:** \_\_\_\_\_

**State:** \_\_\_\_\_ **Zip code:** \_\_\_\_\_

**Telephone:** \_\_\_\_\_

**Email:** \_\_\_\_\_

**Registration Fee: \$50**

**Box lunch (optional): \$ 10 (sandwich, chips, dessert, drink)**

\_\_\_\_\_ Ham \_\_\_\_\_ Turkey \_\_\_\_\_ Vegetarian

### VENDOR REGISTRATION FORM Before April 15: \$10/table; after April 15: \$15/table

**Name:** \_\_\_\_\_

**Affiliation:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**City:** \_\_\_\_\_

**State:** \_\_\_\_\_ **Zip code:** \_\_\_\_\_

**Telephone:** \_\_\_\_\_

**Email:** \_\_\_\_\_

**Number of 4 x 8 tables:** \_\_\_\_\_

**Special requirements (power, cold storage, etc.):** \_\_\_\_\_