



# Small Farm News

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1999

SMALL FARM CENTER • COOPERATIVE EXTENSION • UNIVERSITY OF CALIFORNIA

## Emergence of the Herb Industry

by Desmond A. Jolly, agricultural economist, Department of Agricultural and Resource Economics, UC Davis

A 30-day supply of *Your Life* antioxidants currently sells for \$12.29. At the same Long's drug store in Davis, California, a 50-count softgel packet of Saw Palmetto was priced at \$11.29, while the same number of Goldenseal softgels cost \$10.99. St. John's Wort, frequently in the news recently, was priced at \$19.99.

Clearly, medicinal herbs have arrived in terms of being a meaningful area of economic activity. No longer on the fringe of mainstream American culture, the touted prophylactic and therapeutic benefits of botanical herbs have engendered significant investments by mainstream pharmaceutical companies positioning themselves for what is expected to be a major area of economic opportunity.

*HerbalGram*, the journal of the American Botanical Council and the Herb Research Foundation, has provided some timely updates on the changing economic structure and prospects for the medicinal herb industry. Mark Blumenthal's article, "Herb Industry Sees Mergers, Acquisitions, and Entry by Pharmaceutical Giants in 1998," (*HerbalGram* No. 45, Winter 1999) observed that, "The past year was marked by unprecedented explosive growth in the herb industry as millions of Americans began using herbal dietary supplements and new sales highs were achieved in mainstream markets."

Blumenthal points to the existence of many small, medium, and large scale businesses. However, there is an accelerating trend towards consolidation as companies search for market power and industry dominance. Thus, there was a great deal of activity in the area of mergers, acquisitions, and new entries during 1998.

### The Herbal Product Market

A recent consumer survey conducted by Harvard-based researchers indicated the herbal products market may be as much as \$5.1 billion. The estimate is based on a telephone survey of 2,055 randomly chosen adults in the U.S. population. The study's

—CONTINUED PAGE 10

## Small Farm Program Presents Awards

by Jeannette Warnert, public information representative, University of California

The Small Farm Program recognized a representation of agriculture's finest farmers, educators and legislators at its 20th anniversary banquet and awards ceremony March 30 at UC Davis. Kathleen Barsotti, Paul Muller and Dru Rivers, Manuel Jimenez, and Richard Rominger received awards for their contributions as visionaries and supporters of small-scale family farming.

### Kathleen Barsotti: Pioneer Agriculturist of 1999

Kathleen Barsotti came of age in the 1960s, studied ecology at UC Davis in the 1970s, and started farming organically in 1976 with four partners and a small plot of Capay Valley land northwest of Davis.

That set her on a two-decade-long course of innovation in organic farming and small scale marketing that continues to this day. She now manages a prosperous 70-acre operation and sells her organic produce to wholesalers, gourmet restaurants, at farmers' markets, and to a network of subscribing consumers that has given the farm stability.

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Director's Message

# Celebrating 20 Years of Challenges and Successes

In November 1977, the report, *The Family Farm in California*, was submitted to the state of California by the Small Farm Viability Project. It stated: "It is recommended that the State of California make the following commitment: It is declared to be the policy of the State of California to promote the family farm as indispensable to a sound agriculture and a prosperous rural society."



Desmond Jolly

The report indicated that the promotion of family farms can be expected to enrich California life, both economically and socially. It cited a study of 130 San Joaquin Valley communities that found family farm-dominated communities to be more prosperous and desirable to live in than communities dominated by plantation-sized farms.

While we can't say that the state fully or even substantially embraced a pro-family farm policy as its standard, many aspects of the philosophy and measures advocated by *The Family Farm in California* have been implemented.

Marketing was presented as the single most challenging activity for smaller family farmers. During the last 20 years, direct marketing was vigorously advocated by pro-family farm supporters. Amendments to the marketing laws were adopted in the mid-1970s to allow farmers to market directly to consumers through farmers' markets and other direct marketing alternatives. Farmers' markets have made a significant impact on small farm viability. From a handful of markets in the mid-1970s, there are now approximately 300 certified farmers' markets in California. One indication of their

impact is that per farmer daily sales in the Southland-managed markets varies from \$141 to \$894 — with an average of \$438 and gross market revenue ranges from \$175,000 to \$3.6 million.

### California Cuisine

Visionaries like Alice Waters of Chez Panisse restaurant in Berkeley saw the appeal of using fresh, local produce in their restaurants and promoted the development of what came to be known as California Cuisine — foods based on fresh, local and specialty produce.

Other visionaries like Sibella Kraus, now executive director of the Center for Urban Education on Sustainable Agriculture, and entrepreneurs at Greenleaf Pro-

duce and Veritable Vegetables in San Francisco, provided a larger wholesale outlet for local specialty produce. Frieda Caplan of Frieda's Finest developed a niche for specialty and exotic produce. And the take-off of specialty health food stores provided another marketing outlet. Increasing demand for organic products provided yet another market niche for family farmers. When it passed the California Organic Foods Act, the state helped create a more stable market for organics by providing criteria for certification.

Through one-on-one consulting, field days, workshops, newsletters, and radio programs, they transfer knowledge and technology to growers. The Small Farm Center, which is the nerve center of the University of California Small Farm Program, has accelerated this process of knowledge and technology transfer through its publications, newsletters, and sponsorships of conferences and workshops. Its *Small Farm Handbook* continues to be a solid basis of farm management information and *The Specialty and Minor Crops Handbook* has contributed to increased adoption and production of specialty crops.

The Small Farm Program helped to develop the knowledge base for Community Supported Agriculture — a new marketing alternative. This year we celebrate not only the 20th Anniversary of the University of California Small Farm Program, but also the persistence and success of all who have made it possible for our state's 60,000 small farms to survive, and, in many cases, to prosper.



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### The Small Farm Program

The California State Legislature created the University of California Small Farm Program in 1979 to enable a more efficient and effective mechanism for

# program news

## Agreements

The **Small Farm Center** entered into a cooperative agreement with the U.S. Department of Agriculture Cooperative State Research, Education and Extension Services (USDA-CSREES) to carry out a study on the feasibility of a western region small farm center. The new center would work cooperatively with USDA and other regional centers to carry out research and extension for small farm clientele.

## Appointments

**Desmond Jolly**, Small Farm Program director, has been appointed to the USDA National Agricultural Research, Extension, Education and Economics Advisory Board (NAREEE) ad hoc committee on small farms research.

The committee will develop recommendations on how NAREEE can improve its output of small- and medium-sized farm related research and extension, and will produce an initial report by August 1, 1999. A final report will be submitted by January 2000.

## Presentations

**Desmond Jolly** presented a paper in a panel on direct marketing at the USDA National Agricultural Outlook Conference in Washington, D.C. in February. The paper was titled "Homemade: Paradigms and Paradoxes of Changing Consumer Preferences."

## Travel

**Paul Vossen**, farm advisor, UC Cooperative Extension Sonoma County, visited Greece during fall 1998 to attend an International Oil Council course for olive oil taste panel supervisors. From contacts made during that trip, he is organizing a return tour to Greece for California producers. Scheduled for November 27 - December 8, 1999, the tour will focus on olive oil production. Watch future *Small Farm News* issues for more information.

**Mark Gaskell**, farm advisor, UC Cooperative Extension, San Luis Obispo and Santa Barbara counties, traveled to Central America in March. He spoke at the ExpoHonduras99 Convention and also at grower meetings in El Salvador. He also visited an El Salvadorean organic vegetable cooperative, which he helped start in 1994, to advise participants on its progress.

**Susan McCue**, *Small Farm News* editor, recently visited farm advisors **Eta Takele** and **Aziz Baameur**, UC Cooperative Extension Riverside County, and **Jose Aguiar**, UC Cooperative Extension Indio Office, and local farmers in the Riverside County/Indio area to assess urban impact on agricultural land and to gather information for future newsletter articles.



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The Small Farm Center links those who need information on small-scale farming with those who have the information. The Center produces publications and a newsletter; sponsors conferences and seminars; holds a library of periodicals, reports and books; gives referrals; and answers requests for information.

Readers are encouraged to send us information, express views, and contact us for assistance. Mention of a specific product is intended for the reader's information — not as a recommendation of that specific product.

## Awards—FROM PAGE 1

Barsotti was honored with the University of California (UC) Small Farm Program's 1999 Pioneer Agriculturist Award for her lifelong commitment to organic farming, her dedication to helping other organic farmers and her efforts to establish the Davis Farmers' Market.



*Kathleen Barsotti*

"Kathleen is an exemplary leader who has pioneered innovations in family farming that have not only benefited her farm, but have opened up opportunities for others," said Desmond Jolly, director of the UC Small Farm Program.

Barsotti was among the first small, organic farmers to understand the potential of specialty crops marketed to chefs who created the new California cuisine. Her introduction of the Bintje potato to the San Francisco market was a textbook example of successful specialty marketing.

In the early 1980s, she was introduced to the interesting Dutch potato by UC Davis Extension Specialist Herman Timm. She grew the vegetable and then sold it within San Francisco culinary circles, where it garnered astronomical prices for the first year or two.

Barsotti, 50 and now battling cancer, said her illness has given her time to reflect on her life. "I am exactly where I always wanted to be," she said. "I have a home in the country with things growing around me. That was a choice of right living."

However, she said, she regrets the years of financial worry she was subjected to in establishing an organic farming business.

"We never had enough money. It was a stressful life. That's not good for you,"

said Barsotti, a single mother of four boys. If she had it to do over, she said, "I would put more things in the hands of God and not get so emotionally stressed."

Barsotti's commitment to farming organically has never swayed.

"Experience has made me more committed rather than less," she said. "I have a lot of appreciation for sustainable agriculture."

### Dru Rivers and Paul Muller: 1999 Outstanding Farmers

Combining wildlife habitat with healthful living, and creating good food and a diverse biological system has been



*Dru Rivers, Paul Muller, and Richard Rominger*

the life's work of Dru Rivers and Paul Muller, who for 15 years have managed a successful small, organic farm in the Capay Valley.

To recognize their commitment to solid values and their dedication to a sustainable agriculture philosophy, the UC Small Farm Program honored the husband and wife team with the 1999 Pedro Ilic Agriculture Award for outstanding farmers.

"Paul and Drus' honesty, integrity and courage are qualities that exemplify this award," said Desmond Jolly. "They each possess the ability to envision what can be done, and the imagination, energy and intellect to translate that vision into a reality."

Rivers and Muller established Full Belly Farm in 1984. Adding five- and 10-acre parcels, they now cultivate 150 acres of a wide variety of fruits, nuts and veg-

etables, which are sold through a 12-member marketing cooperative Muller helped organize. Produce is sold to restaurants and directly to consumers through farmers' markets and a 550-member Community Supported Agriculture (CSA) program.

The CSA, in which consumers pay in advance to receive a weekly box of fresh, organically grown food year round, has been the stabilizing factor for Full Belly Farm.

"We have a tremendous amount of dedicated people who really like our produce," Muller said. "People enjoy it and it's a good idea for family farms. It creates a very stable relationship."

Rivers and Muller owe their success to long hours, persistence and dedication. They paid off the farm within 10 years and are raising their four children, now aged 7 to 15, in a healthy environment.

"We are personally in love with our farm," Muller said. "It is such a right livelihood for us."

Leaders in the Yolo County organic farming community, Rivers and Muller host an annual "Hoes Down Festival" at Full Belly Farm, where they educate and entertain their CSA subscribers, fellow farmers and the public. Muller is a member and first president of the Yolo Chapter of California Certified Organic Farmers and currently is on the board of directors for the Yolo Land Trust, an organization dedicated to the preservation of agricultural land.

The couple share their commitment to organic farming with interns and entrepreneurs who are interested in agriculture but lack on-farm experience.

"We want to keep growing more farmers and multiply the number of small farms in our state and our country," Muller said.

The Pedro Ilic Award is named for the Fresno County small-scale farm advisor whose untimely death in 1994 prompted a decision to annually honor those who carry out his legacy of personal commitment to small-scale farmers.

**Manuel Jimenez: 1999 Outstanding Educator**

UC Small Farm Program farm advisor Manuel Jimenez received the UC Small Farm Program's 1999 Pedro Ilic Agriculture Award for outstanding educator.

A Tulare County-based farm advisor for 19 years, Jimenez was honored for his abilities as an effective teacher, advocate for small farmers and dedicated professional who believes in his work.

"Manuel is innovative, persistent, and conducts applied research on real problems farmers have," said Desmond Jolly. "He is a visionary with the ability to make his dreams a reality."

Jimenez' research projects have included studies on minor vegetable crop nutrition, specialty vegetable varieties, annual artichoke production, and other small-scale production issues for crops, such as integrated pest management in onions, broccoli, squash, sugar peas, sweet corn, and tomatoes.

His innovative semi-weekly radio outreach program, "Radio Tulare," brings information on agricultural production, workers' compensation, tractor safety, and other topics to Spanish-speaking small-scale farmers in Tulare County and throughout the Central San Joaquin Valley. Jimenez also reaches small farmers with meetings, newsletters, field demonstrations, and one-on-one consultations.

In his Tulare County hometown of Woodlake, Jimenez has made a tremendous impact during his off-duty hours, blending his agricultural expertise with dedication to children to create "Woodlake Pride." The group of about 100 young people, organized by Jimenez together with his wife Olga, raises money growing produce on a 2.5-acre farm and uses the funds for downtown Woodlake beautification projects.

Currently the group is working with the community to raise money to plant shrubs and trees along a one-mile walking park that adjoins Bravo Lake.

"This is the first phase of something much bigger," Jimenez said.

Woodlake Pride has joined forces with other groups and agencies to create "Woodlake Pride Coalition," which will seek grants to develop a 180-acre parcel into an agricultural arboretum.

"It is a great honor to receive the Pedro Ilic Award," Jimenez said. "Pedro was a good friend and colleague. His efforts to help small-acreage growers through the Small Farm Program are the epitome of great UC Extension success."



*Manuel and Olga Jimenez*

**Richard Rominger: Distinguished Leader Award**

The U C Small Farm Program has presented its Distinguished Agricultural Leader Award for 1999 to U.S. Department of Agriculture (USDA) Deputy Secretary Richard Rominger.

Rominger's support for family farming and alternative marketing goes back to the 1970s when, as head of the California Department of Food and Agriculture, he was an advocate of farmers' markets and the UC Small Farm Program.

Today, Rominger is leading efforts at USDA to respond to and implement changes in USDA programs based on recommendations from the National Commission on Small Farms, a committee appointed by USDA Secretary Dan Glickman and co-chaired by UC Small Farm Program Director Desmond Jolly.

"The commission issued a report with a total of 146 recommendations," Rominger said. "That's a lot. But they focus the attention and resources of USDA on small, beginning and minority farmers."

Rominger also chairs the USDA Small Farm Council, which coordinates efforts across many agencies and mission areas of USDA.

"His leadership at the federal level has been an enormous benefit for California farmers," Jolly said in presenting the award. "Richard is dedicated to the agricultural industry and has taken a personal interest in maintaining the viability of small, family farms in California and throughout the nation."



*Richard Rominger*

A California farmer, Rominger raised alfalfa, beans, corn, rice, and other crops with his brother, sons and nephews near Winters. He was appointed to his federal post by President Clinton in 1993.

Rominger assists the Secretary of Agriculture in supervising the USDA, one of the largest and most diverse departments in the federal government. The USDA's mission includes management of farm programs, conservation programs, domestic food assistance, research, and education and other functions. ■

# Davis Farmer Ahead of the Medicinal Herb Boom

by Jeannette Warnert, public information representative, University of California

**L**ois Richerson was just ahead of the boom. Before popular magazines espoused Echinacea and television talk shows raved about St. John's Wort, back when supermarket tea aisles were still stocked mostly with the ordinary black variety, Richerson was quietly researching farming opportunities for medicinal herbs.

She visited web sites and Oregon herb farms, talked to herbalists and university professors, and took college classes and arboriculture training that prepared her to turn 12 of her 20 acres in western Yolo County into an organic herb production farm.

Richerson and her husband, UC Davis environmental sciences professor Peter Richerson, bought the farm in 1978 after looking for a place to live in the country where they could expand an organic gardening hobby and raise their children. A wood-frame farm house, an old redwood dairy barn and a pristine greenhouse dot the property.

For years, 12 acres were leased to growers, on the condition they were committed to low-input farming. The Richersons converted two acres into wildlife habitat, digging a pond and populating its banks with California native trees, shrubs and grasses.

"We have all sorts of water birds: mallards, blue herons, egrets and green-backed herons. The pond is stocked with bass, catfish, blue gills and turtles. We have frogs and raccoons," Richerson said. "One of our goals is attracting quail."

## Oregon Research

Richerson's plans for the farm crystallized during a trip to Oregon. Although she was received coolly by her long-established northern neighbors, Richerson was moved by what she saw and learned. She soon joined the United Plant Savers, a medicinal plant conservation group, extending her devotion to conservation of California native plants to include medicinal plants

that are over-harvested in their natural habitats worldwide.

Richerson returned to Yolo County convinced that her farm's size and location, the marketing climate, her personal commitment to sustainable agriculture and her desire to embark on a new career all lent themselves well to initiating medicinal herb production.

Her first hurdle was a lack of production information. While some could be scoured from the UC Small Farm Program's library at UC Davis, the Internet, books and



*Lois Richerson, (foreground), with herb rows in background, during a farm tour.*

conversations with fellow farmers, Richerson realized early on that she would have to collect most information herself. To that end, a computer consultant with a penchant for farming works closely with Richerson to carefully monitor each herb's development and maintain a computerized database that includes the plants' germination conditions and rates, planting and fertilization dates, pest issues, harvest time, production costs, and yield. The project may eventually result in an herb production handbook.

This year, Richerson is testing 108 different herbs to determine which will fare the best on the farm and in the marketplace. Most are started from seed in two six-foot-tall germination chambers. Ordered from a company in North Carolina, the chambers provide proper humidity, heat, and light to germinate seeds in as

many as 48 flats each using minimal energy. Once germinated, the seeds are moved to the greenhouse. But even state-of-the-art equipment doesn't eliminate germination problems.

## Challenges Met

"All the herbs have different germination needs," Richerson said. "One needs to be cool for two weeks, then warm and wet, then cold again. I have one of those great, big restaurant refrigerators to provide the cold climate."

The potting soil presents another challenge. Last year, Richerson created her own "live soil," teaming with micro-organisms, by mixing peat, vermiculite, and perlite with her homemade compost. This year she tried a commercial organic soil, with disappointing results. Next year, she plans to try a new compost recipe suggested by another farmer.

The organic farmers' live soil stands in stark contrast to the conventional sterile soil most often used in commercial nursery production. Having a large population of "good" compost microbes in the soil leaves fewer niches for pathogens to inhabit, keeping their numbers low naturally.

"It actually strengthens seedlings if they are exposed to a small amount of pathogens," Richerson said. "It's like inoculating them. Then they can better fend off pathogens later on."

Even so, seedlings do damp off. To control this, Richerson is experimenting with chamomile tea — not to calm her own nerves, but to spray on the plant.

Organic production's biggest nuisance, she said, is weed control. "We spend way over 50 percent of our time on weeds."

With a mixture of success and frustration, she's tried hoeing weeds, flaming, mechanically cultivating, spraying with vinegar, and smothering with paper mulches. Next she'll be experimenting with a new porous fabric mulch that can be

rolled onto the planting beds, and then, when the season's over, rolled up again and stored for the next season.

Nourishing the herbs has proven less vexing. Many, she said, evolved in "lean" natural soils, so they require little nitrogen fertilizer. She uses cover crops, such as vetch, bell beans, cow peas and Austrian peas, and compost made on the farm with horse manure, straw bedding, wood shavings, and other organic matter. Gypsum is applied every year. She calls the calcium sulfate input, which causes a chemical reaction in clay soil that improves its tilth, the "perfect additive."

Many medicinal plants are trees. While Chinese eat Ginkgo Biloba fruit, Richerson said she is growing the trees for leaves, which are said to relieve symptoms of dementia and Alzheimer's disease. "I hope to plant six acres of trees," said Richerson, who also grows Elderberry trees for their flowers and berries, and Chasteberry trees for their berries.

Marketing her product is yet another venture. Richerson canvassed phone books and periodicals, and talked to friends and fellow farmers to compile a list of 130 local herbalists. She had six enthusiastic responses to her first direct mailing. "They're very excited about getting fresh, organically grown herbs," Richerson said.

A second mailing will follow when Richerson has determined what she will sell this year and at what price. To determine pricing, Richerson is analyzing her expenses.

"There is information on pricing of dried herbs, but for fresh herbs there is no certain market," she said. "The herbs will be expensive because so much hand labor and research are involved."

So far, the enterprise has not generated income, but Richerson has no lofty aspirations. Rather, she hopes to cover her costs, fund her continued production research, provide a living wage to her employees, and pay for her own time.

"I just want to support my lifestyle," she said. "I want to live among these wonderful plants." ■

## Resources

### Publications

Issued weekly, *the National Wholesale Herb Market News Report*, from the USDA Agricultural Marketing Service (AMS) provides supply and demand information in national markets and wholesale prices for each market. Cost: free from web site at <http://www.ams.gov/fv/mncs/nherb.pdf> or \$10 per month via mail or fax. Contact: AMS, Fruit and Vegetable Market News Service, 2202 Monterey St., Suite 104 A, Fresno, CA 93721; (559) 487-5178.

*HerbalGram*, the quarterly journal published by the American Botanical Council, includes market reports, legal and regulatory updates, and research reviews. Cost: \$25 per year. Contact: HerbalGram, P.O. Box 201660, Austin, TX 78720; 1(800) 373-7105.

*Directory of Specialists in Herbs, Spices and Medicinal Plants* is a compilation of names, addresses and phone numbers of experts in the field. Cost: \$35. Contact: Lyle E. Craker, Ph.D., Department of Plant and Soils Sciences, University of Massachusetts, Amherst, MA 01003; (413) 545-2347.

*The Directory of Flower and Herb Buyers 1999* lists 56 buyers of flowers, herbs, seeds, roots, and other botanicals, state by state. Cost: \$9 (plus \$1 shipping and handling). Contact: Prairie Oak Seeds, P.O. Box 382, Maryville, MO 64468; (660) 582-4084.

*The Herbal Green Pages* is a resource guide with 6,000 herb related businesses, both retail and wholesale. Cost: \$35. Contact: The Herb Growing and Marketing Network, P.O. Box 245, Silver Spring, PA 17575-0245; (717) 393-3295.

*The Herbalist* is the newsletter of the American Herbalists Guild, a professional herbalist organization. Cost: \$35 per year. Contact: American Herbalists Guild, P.O. Box 70, Roosevelt, UT 84066; (435) 722-8434.

*Cornell Book of Herbs and Edible Flowers* includes production tips and color photos. Cost: \$14.95 (order code 132HB). Contact: Rich Gray, Cornell University Resource Center, 7BTP, Ithaca, NY 14850; (607) 255-2090.



### Web Sites

**Herbs - A Small Scale Ag Alternative (USDA)**  
<http://www.penpages.psu.edu/penpages%5FPreference/10199/10199255.html>

Herbal background information, resources.

**ATTRA Herb Overview**  
<http://www.attra.org/attra-pub/herb.html>  
 Includes production and marketing information.

**Herbs and Herb Gardening: An Annotated Bibliography and Resource Guide**  
[http://www.nal.usda.gov/afsic/AFSIC\\_pubs/srb9606.htm](http://www.nal.usda.gov/afsic/AFSIC_pubs/srb9606.htm)  
 Complete publication available at this site.

**International Bibliographic Information on Dietary Supplements (IBIDS)**  
<http://www.nal.usda.gov/fnic/IBIDS/>  
 Contains a journal list of 1,500 publications with links to their web sites.

**Seed and Plant Sources for Medicinal Herbs and Botanicals (Missouri Alternatives Center)**  
<http://agebb.missouri.edu/mac/links/mach.htm>  
 Links to medicinal herb and botanical sites.

**Guide to Medicinal and Aromatic Plants, Purdue University Center for New Crops**  
<http://www.hort.purdue.edu/newcrop/med-aro/default.html>  
 Crop descriptions, guide to herb varieties and sources of seeds and plants.

**Growing Herbs for Essential Oils, Cooking and Medicine**  
<http://www.crop.cri.nz/broadshe/herbs.htm>  
 General production and resource information from the New Zealand Institute for Crop and Food Research.

A crop insert from the *Small Farm Program Specialty and Minor Crops Handbook*

# Tarragon

*Artemisia dracunculus* is a member of the Asteraceae (sunflower) family

**T**arragon is an aromatic perennial herb native to Europe, southern Russia, and western Asia. The plant reaches a height of 2 1/2 to 4 feet and has thin, erect stems, delicate, narrow green leaves, and greenish white flowers.

## Market Information

**Use.** Tarragon is widely cultivated for its anise-flavored leaves, which are used for seasoning. It is also the source of an aromatic, pungent essential oil called estragon, which can be used as flavoring in pickles and tarragon vinegar. The fresh or dried leaves are used as a culinary seasoning. They are most flavorful and aromatic when used fresh. Tarragon is also used in perfumes, soaps, and cosmetics.

## Culture

**Climatic requirements.** Tarragon grows best in warm, sunny locations on dry soils with good drainage. The plant is intolerant of standing water or poorly drained soils. It grows best at temperatures ranging from 45° to 63° F, with annual precipitation of 1 to 4 feet and a soil pH of 4.9 to 7.8.

**Propagation and care.** Tarragon is best started from seedlings, divisions, or cuttings. Take divisions in the early spring as new growth appears. Take cuttings in autumn or late spring. Roots spread laterally rather than vertically, so plants must be cultivated carefully, and mulch must be provided over the winter for frost protection. Plants should be divided every 3 or 4 years to reinvigorate growth and flavor. Plants can be multiplied by dividing the crown clumps. Space root divisions 18 inches apart in rows 3 feet apart. Crowns should be subdivided again after 3 or 4 years.

Tarragon plants rarely produce viable seed. Seeds that are available for sale may be the less-versatile false or Russian tarragon (*Artemisia dracunculoides*), or a more vigorous grower that lacks the aromatic oils of French tarragon (*A. dracunculus* var. *sativa*).

Harvesting can begin 6 to 8 weeks after setting out. In summer, harvest the leaves just as the flower buds appear, and continue until late autumn, stopping before the leaves begin to turn yellow. The leaves bruise easily; handle them gently.



Tarragon. Photo: Charlotte Glenn

When the leaves do begin to yellow, cut the plant back to about 3 inches above the ground. Hang harvested stalks in bunches in a warm, dry place out of direct light. The tarragon can be dried, but some color and flavor may be lost.

**Postharvest handling.** The successful marketing of fresh herbs requires careful postharvest handling. Temperature is the most important factor. The optimum postharvest temperature, 32° F, will allow a shelf life of 3 to 4 weeks; 41° F will allow a minimum shelf life of 2 to 3 weeks. Appropriate cooling methods for most herbs include cold rooms, forced-air cooling, and vacuum-cooling. Morning harvest minimizes the need for cooling.

Prevention of excess moisture loss is important. Tarragon can be held in water. Most herbs respond well to high humidity: relative humidity in the packing area, cold rooms, and transport vehicles should be maintained above 95 percent where practical. You can also pack fresh herbs in bags designed to minimize water loss. Maintain constant temperatures and reduce condensation inside the bags to prevent excess moisture and to avoid fungal or bacterial growth. Bags can be ventilated with perforations or fabricated from a polymer that is permeable to water vapor. Young herb tissue is susceptible to ethylene damage. This can be minimized by maintaining recommended temperatures. If water is used during handling, chlorinated water can reduce microbial load. To prevent physical injury to leaves, pack them in rigid clear plastic containers or pillow packs.

## French Tarragon Plant Sources

Henry Field's Seed & Nursery Co.,  
415 N. Burnett, Shenandoah, IA 51602;  
(605) 665-4491; [www.henryfields.com](http://www.henryfields.com)

Nichols Garden Nursery, 1190 North  
Pacific Hwy., Albany, OR 97321  
(541) 928-9280  
[www.gardennursery.com/index.html](http://www.gardennursery.com/index.html)

Companion Plants  
7247 N. Coolville Ridge Rd.  
Athens, OH 45701  
(740) 592-4643  
[www.frognet.net/companion\\_plants/](http://www.frognet.net/companion_plants/)

### More Tarragon Information

Cantwell, M., and M. Reid. Postharvest Handling of Fresh Culinary Herbs. *Perishables Handling* No. 60:2-4. Department of Vegetable Crops, University of California, Davis, CA. 1986.

Joyce, Daryl, Michael Reid, and Philip Katz. Postharvest Handling of Fresh Culinary Herbs. *Perishables Handling* No. 58:1-4. Department of Vegetable Crops, University of California, Davis, CA. 1986.

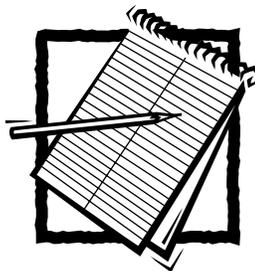
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Simon, James, Alena Chadwick, and Lyle Craker. *Herbs: An Indexed Bibliography 1971-1980*. Archon Books, Hamden, CT. 1984.

Article information prepared by Yvonne Savio and Claudia Myers. ■

To order the Specialty and Minor Crops Handbook, call the Small Farm Center at (530) 752-8136.

## News Notes



■ Harvest time for a culinary herb is best determined by the growing condition of the herb, rather than the specific date or month, according to a Michigan State University Extension 1996 leaflet. Most herbs are ready to be harvested just as the first flower buds appear. The leaves contain the maximum amount of volatile oils at this stage of growth, giving the greatest flavor and fragrance to the finished product. Source: <http://www.msue.msu.edu/msue/imp/mod03/03900063.html>

■ The key constituents of St. John's Wort are most concentrated in the buds, flowers and distal leaves, according to the Agriculture and Agri Food Canada Southern Crop Protection and Food Research Centre. Flowering tips can be harvested once a minimum of four flowers are opened, at a stem length of 20 centimeters. Harvest can be repeated three to four times at three- to five-day intervals. Source: <http://res.agr.ca/lond/pmrc/study/newcrops/stjohnswort.html>

■ For small-scale entrepreneurs, the best chance of competing in the herb market may be in plant sales, according to a USDA Small Scale Agriculture Alternative fact sheet. With interest in gardening at an all time high, gardeners are searching for a variety of herbs for cooking, landscaping, and alternative health needs. Prospective herb producers might consider starting a mail order business to supply backyard gardeners with plants.

■ An article in the March 1999 issue of *Consumer Reports Magazine* noted that in a 1997 U.S. study of patients with mild to moderate dementia, those who ingested Ginkgo Biloba supplements scored slightly higher on tests of mental performance and social behavior than those who took a placebo. The article cautions that Ginkgo Biloba, used by many to boost mental prowess, should not be taken by people on blood thinners or those hypersensitive to poison ivy, cashews, or mangoes.

■ Functional foods, (nutraceuticals, phytochemicals, or designer foods), are among the fastest growing trends in the food industry and could have significant positive impact on vegetable sales. Nutraceuticals are considered to be any food or part of a food that may provide medical or health benefits, including prevention or treatment of disease, according to Tom MacCubbin, Cooperative Extension, University of Florida. Functional foods could play a role in the prevention and treatment of at least four of the leading causes of death in the United States, namely cancer, diabetes, cardiovascular disease, and hypertension. MacCubbin suggests that the vegetable industry might take advantage of this trend in designing future marketing strategies to stimulate the consumption of vegetables.

**Emergence**—FROM PAGE 1

results were published in the November 1998 issue of the *Journal of the American Medical Association*. Other estimates are somewhat lower than those derived from this study, but there is little question that it is the fastest growing segment of the dietary supplement industry.

In an industry overview article by Peggy Brevoort published in *HerbalGram* (No. 44, Fall 1998), the market was estimated at \$3.7 billion as of July 1998 and allocated amongst various market channels. The market has virtually doubled since 1994, a 4-year period.

**Behind the Boom**

A number of factors are responsible for the booming growth of herbal demand, beginning with a growing concern for health that has been increasing for at least three decades. Additionally, alternative medicine has steadily gained in credibility as concerns over traditional synthetic drugs have increased, and as research validates the efficacy of many herbal products in the treatment of various health conditions. Notable among these have been studies indicating the therapeutic benefits of St. John's Wort in the management of depression.

Advertising campaigns based on large budgets of up to \$1,000,000 are no longer exceptional. And the brand names of major pharmaceutical or food supplement companies have added to consumer comfort with herbal products.

**What Are Consumers Buying?**

Brevoort's *HerbalGram* article draws on a number of sources to show the pattern of consumer usage for various herbal products. For example, when aggregated into a relatively small number of functional categories, the data shows that the herb associated with managing mild to moderate depression, St. John's Wort, grew by 490 percent in 1998. By comparison, herbs having purported therapeutic effects on brain function, mainly Gingko and Gotu Kola, grew by 52 percent, vs. 47 percent for calmativie herbs (Kava Kava, Valerian, Chamomile and Skullcap). Herbs targeting the immune system and colds and flus, such as Echinacea and Goldenseal, grew by 9 percent, and men's herbs (Saw Palmetto and Pygeum) grew by 23 percent.

The data in Table 1 dramatizes the explosive growth of the market. As Table 1 indicates, increases in sales in the 52 weeks ending July 12, 1998, range from 26 percent, noteworthy in itself, to 2801 percent for St. John's Wort.

**Unresolved Issues**

As the herbal products industry evolves from cottage industry to industrial status, several issues have emerged as potentially problematic. One set of issues involves protocols for demonstrating and validating efficacy and safety. Herbal products have historically been produced and used as whole products

rather than isolated active ingredients. The isolation and standardization of dosages for efficacy and safety could pose a meaningful challenge, particularly as some products may be effective because they have several active ingredients acting synergistically.

According to Brevoort, validating methods for Gingko Biloba, Echinacea, and Panax Ginseng are near completion, and work is underway on St. John's Wort.

Depletion of natural sources of supply could pose another challenge to the sustainability of genetic diversity, as harvesting may significantly outstrip replacement supplies. Further, ethnobotany combined with commercialization could result in the exploitation of indigenous peoples along with their natural resources.

Additionally, while the entry of the pharmaceutical giants into the herbal industry brings with it major opportunities for research, product development, advertising and marketing, it may challenge the viability and sustainability of smaller-scale operations. As processors become larger, they will undoubtedly prefer to make alliances with suppliers that can meet their demands for large supplies of standardized product. Smaller producers may need to develop horizontal alliances, perhaps in the form of producer or marketing cooperatives and associations.

**References**

1. Blumenthal, Mark. "Harvard Study Estimates Consumers Spend \$5.1 Billion on Herbal Products." *HerbalGram* No. 45 (Winter 1999): 68.

2. Brevoort, Peggy. "The Booming U.S. Botanical Market: A New Overview." *HerbalGram* No. 44 (Fall 1998): 33-46. ■

**Table 1 - Top Selling Herbs - Mass market (FDM)\* 52 weeks - July 12, 1998**

	<i>in U.S.\$ - millions</i>	<i>% of growth</i>		<i>in U.S.\$ - millions</i>	<i>% of growth</i>
Gingko	\$138	140%+	Kava Kava	\$8	473%++
St. John's Wort	\$121	2801%++	Evening primrose	\$8	104%+
Ginseng	\$98	26%+	Echinacea/Goldenseal	\$8	80%+
Garlic	\$84	27%+	Cranberry	\$8	75%+
Echinacea	\$33	151%+	Valerian	\$8	35%+
Saw Palmetto	\$27	138%+	All Others	\$31	
Grapeseed	\$11	38%+	<b>Total</b>	<b>\$663.4 million</b>	

\*Food, Drug, and Mass merchandise. Source 1: IRI July 12, 1998. Source 2: Brevoort, *HerbalGram* No. 44.  
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# calendar

*JUNE*

2

**Soil Mycorrhizal Fungi  
Indio, CA**

In addition to information about soil mycorrhizal fungi, this luncheon meeting offers one hour of continuing education credit. Lunch is provided.

Contact: Jose Aguiar, UC Cooperative Extension Indio Office, 49-209 Oasis St., Room 103, Indio CA ; (760) 863-7949.

14-25

**Permaculture Design Course  
Williams, OR**

Learn how to capture water and store it in the soil. Participants completing the course are certified as permaculture designers through the Permaculture Institute.

Contact: Jana Larson, Panther Gulch Permaculture, 963 Panther Gulch Road, Williams, OR 97544; (541) 846-6407.

June 15 Sonoma, CA

June 29-30 Modesto, CA

**Livestock and Dairy Conference and Tour**

Topics include animal health, animal waste management, marketing organic meat and organic dairy products, and feed and forage mixes.

Contact: Ken Dickerson, Committee for Sustainable Agriculture, 406 Main St., Suite 313, Watsonville, CA 95076; (831) 763-2111.

*JULY*

7

**Irrigation Management Schemes to Minimize Losses  
of Pesticides and Fertilizer  
Indio, CA**

**Indio, CA**

This irrigation management luncheon meeting offers one hour of continuing education credit. Lunch is provided.

Contact: Jose Aguiar, UC Cooperative Extension Indio Office, 49-209 Oasis St., Room 103, Indio CA ; (760) 863-7949.

8-11

**Herbs Around the World  
East Lansing, MI**

Sponsored by the International Herb Association (IHA), the event presents information on herb growing, marketing, and use.

Contact: Ruth Gleim, IHA Herbs '99, P.O. Box 206, Mechanicsburg, PA 17055-0206; (717) 697-1500.

*AUGUST*

4

**How to Recognize Herbicide Injury Symptoms on Vegetables  
Indio, CA**

In addition to information on herbicide injury, this luncheon meeting offers one hour of continuing education credit. Lunch is provided.

Contact: Jose Aguiar, UC Cooperative Extension Indio Office, 49-209 Oasis St., Room 103, Indio CA; (760) 863-7949.

*SEPTEMBER*

3-6

**Summer Herbal Intensive  
Auburn, CA**

This weekend program is held on an herbal farm where participants learn about herbs through lectures and hands-on participation.

Contact: Shatoiya de la Tour, Dry Creek Herb Farm and Learning Center, 13935 Dry Creek Rd., Auburn CA 95602; (530) 878-2441.

11

**Apples for the Home Garden and Small Orchard  
Santa Cruz, CA**

Learn the apple varieties and rootstocks that are best for the home garden or small orchard.

Contact: John Fisher, Community Outreach Coordinator, UC Santa Cruz, 1156 High St., Santa Cruz, CA 95064; (831) 459-3248.

*OCTOBER*

12-15

**1999 National Small Farm Conference  
St. Louis, MO**

Small-scale farmers, state and county extension faculty, community leaders, and nongovernmental organizations share new approaches to small farm programs.

Contact: Denis Ebodaghe, USDA-CSREES, Ag Box 2260, Washington, D.C. 20250-2260; (202) 401-4385.

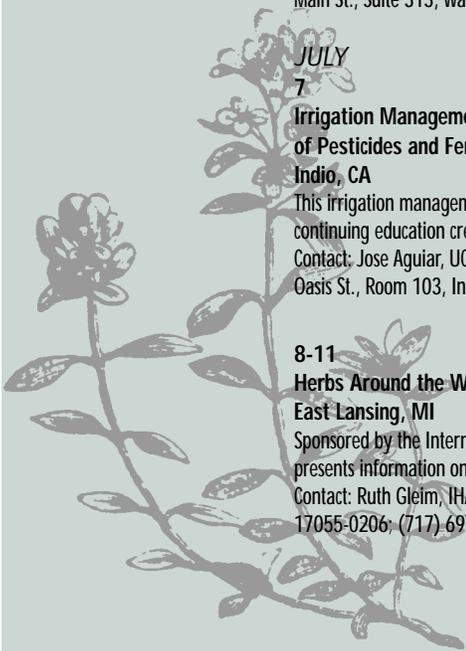
*NOVEMBER*

7-9

**Farm Conference  
Berkeley and Treasure Island, CA**

For small-scale farmers, farm advisors, farmers' market managers, and other interested parties, this conference includes workshops and tours.

Contact: Tom Haller, Community Alliance with Family Farmers, P.O. Box 363, Davis, CA 95617-0363; (530) 756-8518, ext. 16.



Visit our web site and add your event at <http://www.sfc.ucdavis.edu/docs/calendar.html>

herb resources

**Herb-related Organizations**

American Botanical Council  
 PO. Box 144345, Austin, TX 78714-4345  
 (512) 926-4900; [www.herbalgram.org](http://www.herbalgram.org)

American Herb Association  
 P.O. Box 1673, Nevada City, CA 95959  
 (530) 265-9552; web site address unavailable

American Herbal Pharmacopoeia  
 PO Box 5159, Santa Cruz, CA 95063  
 (831) 461-6317; [www.herbal-ahp.org](http://www.herbal-ahp.org)

American Herbalists Guild  
 (for professional herbalists)  
 P.O. Box 70, Roosevelt, UT 84066  
 (435) 722-8434; [www.healthy.net/herbalists](http://www.healthy.net/herbalists)

Herb Research Foundation  
 1007 Pearl Street, Suite 200, Boulder, CO 80302  
 (303) 449-2265; [www.herbs.org](http://www.herbs.org)

Herb Society of America  
 9019 Kirtland Chardon Rd., Mentor OH 44094  
 (440) 256-0514; [www.herbsociety.org](http://www.herbsociety.org)

U.S. Pharmacopeia  
 5645 Fishers Lane, Rockville, MD 20852  
 (301) 881-0666; [www.usp.org](http://www.usp.org)

**Trade Associations**

American Herbal Products Association  
 8484 Georgia Avenue, Suite 370, Silver Spring, MD 20910  
 (301) 588-1171; [www.ahpa.org](http://www.ahpa.org)

International Herb Association  
 P.O. Box 206, Mechanicsburg, PA 17055  
 (717) 697-1500; [www.herb-pros.com/index.html](http://www.herb-pros.com/index.html)

The Herb Growing and Marketing Network  
 P.O. Box 245, Silver Spring, PA 17575  
 (717) 393-3295; [www.herbnet.com](http://www.herbnet.com)

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