



# Plant Science Press

UNIVERSITY of CALIFORNIA  
HUMBOLDT COUNTY COOPERATIVE EXTENSION  
5630 S. Broadway, Eureka, CA 707-445-7351



Plant Science Press

## From the Farm Advisor

**Deborah Giraud, Farm and Community Development Advisor**

I hope your summer is progressing well, it sure was a long wet spring, with many fungus and bacteria outbreaks, especially on the fruit trees, strawberries and other late spring crops.

Some new programs are in the works. Please see the article below about the new IDA program and the farm incubator program. Ag, Nature and Heritage Tourism: a workshop was held with a field trip, see article inside! The barn group will start meeting again soon, we have many ideas on incorporating the barn restoration ideas with ag tourism.

Lots of grant writing projects, so keep your fingers crossed that our UC submitted ones, and all the other groups get funded. Food security, succession of ownership and management of our farms and many other topics need funds to progress the ideas.

An efficacy table on which products, both commercial and organic, actually work to protect fruit trees from disease can be found at: <http://www.ipm.ucdavis.edu/PDF/PMG/fungicideefficacytiming.pdf>. Unfortunately, the organic controls of copper, sulfur and liquid lime sulfur are not very effective on stone fruits.



## Individual Development Account Program

IDA programs were developed in the urban housing arena to help first time home buyers. My collaborator, California FarmLink, pioneered bringing the concept to beginning farmer programs. We are fortunate to start one here in Humboldt County this fall. Arcata Economic Development Corporation will provide the fiscal oversight and a community grant from Wells Fargo Bank. UCCE and the Small Business Development Corp. will put together the workshops.

We are looking for farmers with under 10 years of experience who want to develop a sound business plan, start saving some money (\$100-\$150 per month), attend workshops to help them in a variety of topics, and receive

a grant at the end of the 18 months for capital improvements for their farm business. Applicants need to meet financial criteria. The grant will match the savings 2:1. Capital improvements can be equipment, or a down payment on land. They are not consumable supplies such as amendments or trees. The farmers enrolled in this program are called a 'flight'. It is a consistent group that meets monthly in the winter to network, share ideas, and learn together at workshops. This group of farmers become a support group, and in other areas and other flights, many good things have evolved! If you are interested, please call me and the application will be available soon on our web site.

## New Farm Incubator Project

The goal of this project is to provide small acreage for new farmers to get started on, try out their idea for a crop or two, and get the three years experience they need as independent farmers to be able to develop their business plans, then lease larger parcels and even get loans to buy their own farms if desired.

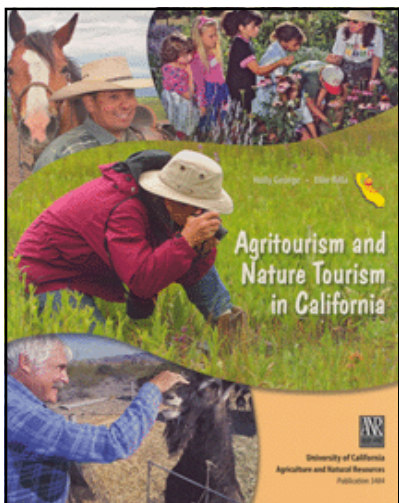
(Continued on last page)



## Ag, Nature and Heritage Tourism Project

This new project started off with a workshop on April 2nd here at the Agriculture Center. We had a great turnout of interested landowners, farmers and ranchers.

The Agritourism and Nature Tourism which was included in the workshop fee is a great starting point for anyone thinking of offering any kind of tourism business to their operation. The manual is available to help farmers and ranchers 1) determine their tourism potential and 2) walk through the steps of establishing a tourism enterprise. Please call 707-445-7351 to order your copy.



The powerpoint slide shows are available here at my office, please make an appointment to come talk about your business ideas and I can share with you some of the information given out on that day.

The speakers stressed being prepared, especially with a business plan, being authentic to the experience you want to share with the tourist, but not to be afraid of offering some agri-entertainment options for the whole family, as while Dad may be interested in the antique tractor and it's implements, the kids need a swing set made to look like a horse, or a cleverly placed stack of bales to carefully climb on to keep happy. Hiking, wildflowers tours, bicycle camps, private campsites, events, there were many ideas shared. The ultimate goals of making some dollars, while educating the public on your superb land management and food production skills can be met, and be fun for all.

OH, the people skills, someone in the family needs them, or hire someone to be the front person!

## Gopher Traps

I have an article I would be glad to send to anyone who requests it that has many useful tips about gopher control. It is titled Gopher Control on Organic Farms, by Thomas Wittman. Here are a few summaries of some of the information.

Cultural practices such as which cover crops, how you use tillage, adding cross ripping, and paying attention to your crop rotations with gophers in mind can all affect the gopher populations.

There are at least four types of traps on the market. Each has its pros and cons, and you should try them all out. The Macabee has been around since 1900 and is still the easiest to find in the stores. You need to find the main runway and set two traps.



Box traps have also been around for a long time. A newer version is the Black Hole. It tricks the gopher into thinking it is still in the tunnel.

The author has had the most success with a Cinch trap. This has actually been around a very long time too, but mostly used by professionals, as it has a double trigger and a strong spring, and can be more difficult and dangerous to set. He uses them singly in the burrow entrance. Photos are in the article.

After plowing or mowing is a great time to trap gophers. The mounds are easy to see. Be consistent and make trapping part of your weekly or daily routine, getting ahead of the breeding pairs can save you a great deal of damage. Perennials such as orchards and vineyards are obviously a reservoir that you don't want to get ahead of you.

Cats actually hunt more if well fed and cared for, a good gopher cat takes it on as sport.

Barn owl boxes are well worth the investment. Be sure the opening is about 5 inches in diameter and no larger, as their predators, the great horned owl, will enter and eat the young birds. Barn owl diet is 90% gophers. Dogs will also gobble them up and follow the tractor when plowing.

Good luck!

## Ode to the Garbanzo Bean: A Crop Profile



### General Information and History

The garbanzo bean (or chickpea) is a legume with the scientific name *Cicer arietinum*. The specific name *arietinum*, was derived from the Latin word *Aries*, meaning ram. The unique shape of the garbanzo seed resembles the curved horns of a ram's head.

Chickpeas are an annual grain legume or "pulse" crop that originated in the Fertile Crescent of the Near East. Chickpeas were one of the first legumes cultivated by humans, dating to 7000-6000 BC. The term "pulse" originates from the Latin word *puls*, meaning "thick soup." Pulse crops like chickpeas, dry beans, dry peas, broad beans, lentils and lupine work with mycorrhizal bacteria to convert nitrogen from the atmosphere into nitrogen nodules on the plant roots.

World chickpea production is roughly three times that of lentils. Among pulse crops marketed as human food, world chickpea consumption is second only to dry beans. Turkey, Australia, Syria, Mexico, Argentina and Canada are major chickpea exporters. About 90 percent of chickpeas are consumed in India.

Historically, North American chickpea production was confined to California (8,000 to 20,000 acres) and the Pacific Northwest (20,000 acres). Recently, chickpea production has expanded into the Northern Great Plains regions of Canada and the United States. In Saskatchewan, chickpea production increased from 8,000 acres in 1995 to over 200,000 acres in 1998. In 1998, Montana produced about 4,000 acres and North Dakota about 3,300 acres, with yields averaging from 800 to 1,200 pounds per acre.

### Nutritional and feed quality

Chickpeas have one of the highest nutritional compositions of any dry edible legume. Chickpeas' average nutritional content is 22 percent protein,

67 percent total carbohydrates, 47 percent starch, 5-percent fat, 8 percent crude fiber and 3.6 percent ash. The fat (lipid) fraction is high in unsaturated fatty acids, primarily linoleic and oleic acids.

Chickpea protein digestibility is the highest among the dry edible legumes. The content of the amino acid lysine is adequate, while the sulphur-containing amino acids, methionine and cystine, are the first limiting amino acids. Chickpeas are considered a cholesterol reducer due to their unsaturated fatty acid and fiber content. Chickpeas are unique in moderating the rise in plasma glucose after meals. Chickpeas are used to help control diabetes in eastern Asia. The chickpea mineral component is high in calcium, potassium, phosphorous, iron and magnesium. Chickpea calcium content is similar to that of pinto beans, about 100 to 200 mg/100g (compared to 35-70 mg/100g for dry peas and lentils). The only negative factor ascribed to chickpea consumption is more flatulence due to a higher concentration of non-reducing sugars than other dry edible legumes.

Chickpeas are also a good livestock feed. Feed values and feeding studies for kabuli and desi chickpeas have been compared to peas, barley, grain and soybeans. Chickpeas have higher oil content than other pulse crops and the feed value of chickpeas is similar to dry peas.

### Field history and selection

To select appropriate fields for chickpeas, consider previous herbicide use, weed spectrum and pressure, interval since last chickpea crop and proximity of other chickpea fields. These considerations are important to manage weeds and diseases and to minimize residual herbicide injury to the crop. (

Continued on next page)

## Ode to the Garbanzo Bean—A Crop Profile (Continued)

A field that has not had Chickpeas for at least three years and is at least three miles from the previous year's fields is important to prevent Ascochyta blight. If Ascochyta blight was detected in the field, increase the isolation distance to at least three miles. Many herbicides used in small grain production can carry over, resulting in chickpea injury and yield loss.

### Rotational benefits

Chickpeas, like other annual legumes in a rotation, offer several cropping advantages for the producer. Cereal crop yields often increase when planted after legumes due to the following considerations:

- Cereal disease and insect cycles have been disrupted
- Alternative herbicides to cereal crops can be used to clean up grassy weeds.
- Soil nitrogen supply is increased.

### Varieties

To protect the North-State food crop industry, Ascochyta-resistant varieties are recommended. The U.S. Department of Agriculture's Agricultural Research Service breeding program at Washington State University-Pullman has released three resistant kabuli varieties (Dwelley, Evans and Sanford) and a resistant desi variety (Myles). Sanford is higher yielding and Dwelley produces large seeds. Evans has a seed size midway between Dwelley and Sanford and has the advantage of maturing one week earlier than Sanford and Dwelley.

The Crop Development Center at the University of Saskatchewan, Saskatoon, has also released three resistant kabuli chickpea varieties (CDC Yuma, CDC Xena and CDC Chico). CDC Yuma and CDC Xena are similar to Sanford and Dwelley in seed size, respectively; however they mature earlier and have a higher yield potential. CDC Chico and B-90 (from Terramax of Qu'Appelle, Saskatchewan) are small-seeded kabuli types designed to enter the desi chickpea market without requiring decortication.

### Diseases

Ascochyta blight is the most serious threat in chickpea production. Plants infected with Ascochyta first show stem-tip wilting and die back. This may be

followed by dark, sunken lesions that soon become a concentric ring. Eventually the infection ring girdles the plant and it dies above that point.

Cool, moist conditions favor the disease. Splashing rain helps spread the pathogen, and pod infections lead to seed contamination. The pathogen survives in infected seed and residue. Since it is nearly impossible to certify that chickpea seed is pathogen free, seed should be purchased from a reputable supplier. High quality Ascochyta-resistant seed, coupled with a minimum four year rotation and several miles distance from field previously planted to chickpeas will help to minimize the potential for Ascochyta blight outbreaks.



When the soils are cold and moist after seeding, soil-borne fungi can produce damping off and seedling blights, harming stand establishment (Pythium and to a lesser extent Fusarium). Kabuli chickpeas are especially prone to seedling infections due to the large seed size and thin seed coat and can be treated with a product available as a seed treatment (Apron®) to insure stand establishment.

From an article in USDA Magazine.

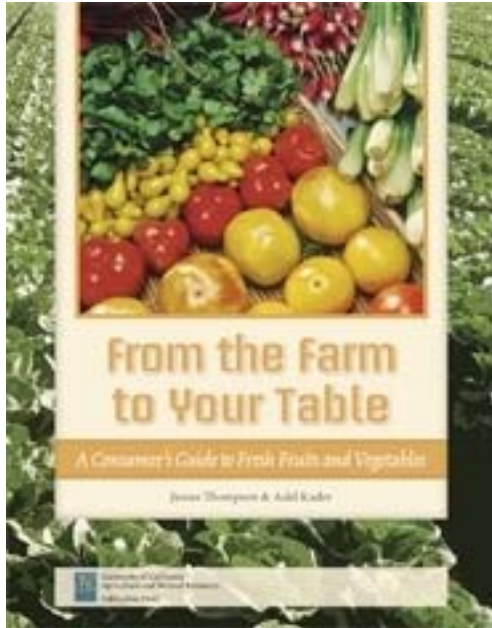
## **Farm Manager Opening!**

Start up organic farm is looking for an experienced farm manager, knowledgeable in all phases of farming, from 'ground to market'. The farm is 16 acres of which approximately 10-12 acres will be dedicated to crops, including herbs, fruit trees and small animals. The site also comes with a trailer/ RV hook up, and private access to the Trinity River. If you are interested and qualified, lease contact us.

Loni D. Hollenbeck  
PO Box 437  
Salyer, CA 95563  
(530) 629-3557



## From the Farm to Your Table: A Consumer's Guide to Fresh Fruits and Vegetables Publication



This new handbook can be used as an educational resource for a healthy kids campaign or to help consumers that are looking to buy fresh and local produce who were not taught while growing up how to appreciate, evaluate, and appraise fruits and vegetables.

The handbook additionally offers how growing and harvesting methods can affect the quality of live food, the overall effect of growing locations, and the number of steps between production and retail markets.

Also included are quick reference tables that show consumers which fruits and vegetables should be stored in the refrigerator and which should be stored on the counter, what to look for when selecting produce at the market, and the steps between produce in the field and their table.

*From the Farm to Your Table: A Consumer's Guide to Fresh Fruits and Vegetables*, (ANR publication 21643, ISBN 978-1-60107-610-6), is \$7.00 and can be ordered by calling 1-800-994-8849 or by logging onto [www.ucanr.org/farmtotable](http://www.ucanr.org/farmtotable).

Shipping and applicable tax are added to the cost of each order.

## Weed of the Month Common Chickweed

Seeds of common chickweed (*Stellaria media*), a winter annual, germinate in late fall. It produces small, fleshy, heart-shaped leaves and smooth stems and is a versatile plant capable of filling many niches.

Common Chickweed is a low-growing with multi-branched slender stems that root readily at the nodes, spreading the plant rapidly. It produces white star-shaped flowers with five-notched petals during winter and spring. It thrives in cool, moist weather and is common in winter cereals, onions, asparagus, peas, vineyards and orchards, in turf and lawns, among shrubbery and along fence lines and ditches. It dies in late spring due to temperature stress.

Although common chickweed is a troublesome weed, it has a long history as a useful plant. The early Greeks and Romans collected and ate the plant during winter months. In the Middle ages, it was popular as a salad green and pot herb, and as a medicinal plant.

Common chickweed was praised by early herbalists as a medicinal for curing rashes. In modern medicine, it is used effectively to cure ulcers, skin diseases and inflammations. Common chickweed also is used in ointments for its soothing characteristics, and it is still used occasionally for rheumatism.



During Elizabethan times, chickweed was collected to feed falcons, who relished it as winter food. The plant was collected to feed to poultry, and thus acquired its common name. Some commercial firms still add chickweed seed to their poultry feed to stimulate the appetites of chickens raised in confinement.

If you are not interested in this versatile plants culinary or holistic exploits, you do have other options. Consistent and frequent pulling or hoeing will eliminate common chickweed from ornamental beds and small lawns and is an excellent way to remove this shallow rooted plant before it goes to seed.

Several pre-emergent herbicides can also be used to control chickweed, depending upon the situation and are labeled to control common chickweed before it germinates.

In turf grass, a post-emergent herbicide can be applied after germination but use caution as some of these products can be absorbed by plant roots and impact desirable broadleaf plants.

University of California Cooperative Extension  
Humboldt County Agriculture Center  
5630 South Broadway  
Eureka, California 95503-6999

NONPROFIT ORG  
US POSTAGE PAID  
EUREKA, CA 95501  
PERMIT 325

Page 6

Plant Science Press

## New Farm Incubator Project (Continued)

Often landowners are reluctant to lease small acreage to beginning farmers. We at the Farm Advisor's office, can provide an umbrella support system, which helps the landowner be part of a larger program. The farmers will be offered workshops and networking opportunities to develop their business plans. I may have some land secured, but until leases are in place, will keep looking for land, please let me know if you can offer any land to

lease. If you are interested in starting a farm plot this fall, in time for tillage and cover crop planting call Deborah Giraud, 445-7351. An application will be on our website soon. Beginning farmers are defined as having less than 10 years experience, and should have means to purchase or lease necessary equipment and seeds, etc.

*Plant Science Press* is a newsletter published by the University of California Cooperative Extension, Humboldt County Agriculture Center, 5630 South Broadway, Eureka, CA, 95503, (707) 445-7351. The UC Division of Agriculture and Natural Resources runs the Cooperative Extension Service. We are an educational and research program with the mission to develop and extend the use of research-based knowledge to improve specific practices and technologies. The *Plant Science Press* was initiated in 1984.

*Deborah Giraud*

We are on the web:  
<http://cehumboldt.ucdavis.edu>