University of California Cooperative Extension

21st Century Agronomics

A Newsletter for Madera and Merced Counties

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IN THIS ISSUE:

< *PUNCTURE VINE*

< *UC Kearney Alfalfa Field Day - Wednesday, September 14, 2005 8:00 a.m. - Noon*

< *Cotton Production Systems Field Day - Wednesday, September 28, 2005 9:00 a.m.*

PUNCTURE VINE
Ron Vargas, Farm Advisor
UCCE, Madera/Merced Counties

I have received several calls this summer regarding puncture vine (*Tribulus terrestis*) and its effective control. Also know as "goathead," because of its spiny seed, this weed is extremely pesty whose seeds are terribly painful to step on, are tracked into your living room carpet, can puncture bicycle tires and interfere with crop production. But, for all of its bad points, extracts of this plant are found in male hormone therapy drugs. In Europe it has been used to treat headaches, nervous disorders, constipation and sexual dysfunction. In China, it has been used in liver, kidney, urinary and cardiovascular remedies.

Puncture vine is an introduced species from the Mediterranean countries which has become widespread in California. Its seeds germinate in the spring (March and April) and it flowers throughout the summer and fall until the frost seasons. It's an annual weed with greenish grey foliage. The stems radiate from the crown and branch freely. When growing on open land the plant is mostly prostrate, but when found in crop land, especially alfalfa, it may grow almost erect. It most often grows very much like a vine, producing many burs on its branches, thus its name, puncture vine.

The root system is a simple top root with an extensive network of very fine rootlets. This system enables this plant to grow under drought conditions and especially enables it to grow and flourish in sandy soils.

The leaves occur in pairs on opposite sides of the stem. The leaves, as well as the stems are covered with silky hairs which serve as a protective covering from heat and drought. The stems frequently have a reddish color.

The flowers (consisting of five petals), which are born in the axils of the leaves are bright yellow. The petals are usually open only in the morning.

COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS, Divsion of Agriculture and Natural Resources, University of California, Madera County, and U.S. Department of Agriculture Cooperating

The seed pods are clusters of five spiny burs usually growing on the underside of the stem. The pods or nutlets fall apart at maturity and each bur contains 2 to 4 seeds and two hard sharp spines. The seed within the bur remains viable for many years.

Dissemination and movement of this plant occur easily due to the spread of the spiny seeds by animals, shoes and clothing of humans, and tires of tractors and vehicles.

In an attempt to control biologically two species of beetles, *Microlarinus lareynii*, a seed weevil, and *M. lypriformis*, a stem and crown mining weevil were introduced into the San Joaquin Valley in the early 60's. Since these introductions, puncture vine populations have been reduced significantly, but as with bio-control programs populations fluctuate with its predator populations. At present, weevil populations are low, resulting in an increasing population of puncture vine. As the puncture vine populations increase providing a greater food source, the weevil population will increase, resulting in lowered puncture vine population.

Control of puncture vine can be most difficult. If the infestation is found along roadside, or other non crop areas, the best means of control is to introduce the weevils to the area. Locate puncture vines growing undisturbed, such as along a ditch bank that are turning yellow. Examine the stems and seed pods for tiny holes which indicate the presence of weevils. Collect infested plants and introduce them to the control area. Do not disturb the area so the weevils can establish themselves. Most often the population of puncture vine can be lowered significantly with this method, but control will be slow.

If you don't want to go through the trouble of finding locations where the weevils are active you can purchase them from various companies. I was able to find three different suppliers of puncture vine weevil including Caltec in Modesto (209) 575-1295, BioCollect in Oakland (510) 436-8052 and IRV Goatheads in Umatella, Oregon (541) 922-4515.

If immediate control is desired mechanical and/or chemical control will be necessary. Several different herbicides will provide control and cultivation and hand removal can be effective. But, whatever method you choose, it must be done before the seeds mature or your control efforts will have little if any effect on next years infestation. As with all weed control strategies, best control is achieved when plants are young seedlings and before flowering occurs.

Cotton Production Systems Field Day
Wednesday, September 28, 2005
9:00 a.m.
San Juan Ranch (North of Hutchins on Elgin Road)
Tri-tip Bar-B-Que at Noon

Plan to join UCCE cotton Farm Advisors, Specialists and John Deere for a first hand look at agronomics, economics and equipment needs of narrow row cotton production including a 15"cotton production system. Learn about emerging technologies such as guidance and aerial imaging and how they are helping growers reduce costs and enhance profits.

Please RSVP to Nancy at 675-7879 Ext. 201 by Wednesday, September 21, 2005.

UC Kearney Alfalfa Field Day

UC Kearney Research and Extension Center
9240 South Riverbend Avenue, Parlier CA, 93648

Wednesday, September 14, 2005

8:00 a.m. – Noon

8:00 a.m.	Registration and Refreshments
8:20 a.m.	Tram Ride to Field Plots
8:30 a.m.	*Choosing Top Varieties for Yield and Pest Resistance, Including the New Roundup Ready Lines*, Dan Putnam, UCCE Agronomist, UC Davis
9:15 a.m.	Return to Lecture Hall
9:30 a.m.	*Horseweed Resistance and Other Weed Resistance Issues Related to Roundup Ready Alfalfa*, Anil Shrestha, UCCE IPM Weed Ecologist, Kearney REC, Parlier
9:50 a.m.	*Groundwater Protection Zones and Alfalfa Herbicides -- What You Need to Know*, Ron Vargas, UCCE Madera and Merced County Farm Advisor
10:10 a.m.	*Stewardship of the Roundup Ready Trait in Alfalfa*, Barbara Kutzner, Monsanto Company Research and Development Representative
10:30 a.m.	BREAK
10:40 a.m.	*Developing More Precise Alfalfa Seeding Rates,* Shannon Mueller, UCCE Fresno County Farm Advisor
11:00 a.m.	*When Is It Too Soon to Replant Alfalfa, Considering Disease, Weeds, Insects and Other Factors,?* Carol Frate, UCCE Tulare County Farm Advisor
11:20 a.m.	*An Update on Alfalfa Insects,* Charlie Summers, UCCE Associate Entomologist, Kearney Agricultural Center, Parlier
11:40 a.m.	Question and Answer Session

PCA Credits Offered

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Sincerely,

Ron Vargas
Farm Advisor