

Santa Barbara County

# CENTRAL COAST AGRICULTURE HIGHLIGHTS

From your Farm Advisors Serving you in the Areas of Vegetables, Small Farms, Strawberries, Field Crops, Livestock and Natural Resources

624 West Foster Road, Suite A, Santa Maria, CA 93455  
Telephone: 805•934•6240 FAX: 805•934•6333

E-mail: [cesantabarbara@ucdavis.edu](mailto:cesantabarbara@ucdavis.edu)

Website: <http://cesantabarbara.ucdavis.edu>

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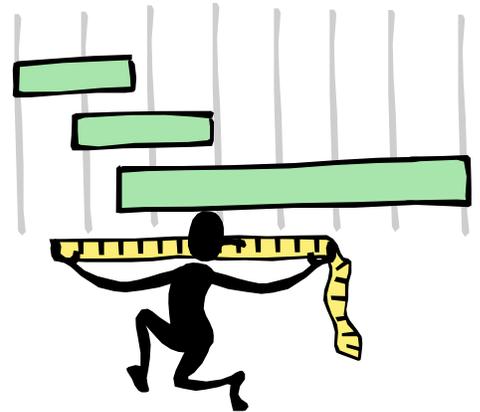
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## Measurements

Franklin Laemmlen

Using current technology and instruments, we can measure almost anything. In the world of agriculture and water, pesticide residues, nonpoint source pollution, and water contamination or contaminants in general, we now read numbers followed by ppm, ppb, ppt, and ppq. What do these symbols mean, and how much are we really talking about? The following is a brief primer for your information.



- |   |
|---|
| ◆ ppm (part per million) or milligrams per liter (mg/l)     |
| ◆ ppb (parts per billion) or micrograms per liter (µg/l)    |
| ◆ ppt (parts per trillion) or nanograms per liter (ng/l)    |
| ◆ ppq (parts per quadrillion) or picograms per liter (pg/l) |

These quantities are difficult to imagine. The following are some comparative equivalents to put things in perspective:

Parts per million or mg/l	Parts per billion or µg/l	Parts per trillion or ng/l	Parts per quadrillion or pg/l
3 drops in 42 gallons	1 drop in 14,000 gallons	10 drops in enough water to fill the Rose Bowl	1 drop in enough water to fill 100 Rose Bowls
1 second in 12 days	1 second in 32 years	1 second in 32,000 years	1 second in 31.7 million years
1 inch in 16 miles	1 inch in 16,000 miles	1 inch in 16 million miles or 1 inch in 640 trips around the earth	1 inch in 16 billion miles or 1 inch in 2,092,926,000 round trips to the moon



## **Printing and Mailing Costs - Part II**

*Franklin Laemmlen*

First we want to thank all of you who returned the "Newsletter Subscription," which was the last page of the August issue of Central Coast Agriculture Highlights. We are off to a good start, but we need more of you to allow us (Santa Barbara Cooperative Extension) to communicate with you by e-mail and website.

To significantly reduce our printing and mailing costs, we need more e-mail subscribers. We would like you to access this newsletter on our website. If you agree to this request, please fill out and return the form on the last page of this newsletter to provide us with your e-mail address.

The following will then happen. Your e-mail address will become part of a "listserv" in our clientele database.

We will continue to publish our newsletter six times a year as usual. The newsletter will be posted on our website <<http://cesantabarbara.ucdavis.edu>> as a pdf file. When a new issue is ready, we will notify you of this fact by e-mail, telling you to go to the website to download the newsletter.

Thank you for your help in this effort. We already have a number of readers on line, we hope we can add your name to this list. If you are unable to receive our *Central Coast Agriculture Highlights* electronically, we will be pleased to continue sending it by mail.

To those of you who are reading this message on your computer - THANK YOU! To those of you who are reading this message in hard copy - PLEASE HELP US with your e-mail subscription.



## **Magnesium in Plants**

*Warren Bendixen*

Magnesium is essential for plant growth. It is part of the chlorophyll molecule and affects phosphate transfer. Magnesium is an element whose deficiency soon affects every facet of the metabolism of the plant. Chlorosis is an early symptom, followed by diminished photosynthesis. The magnesium content of normal chloroplasts is high.

Plants deficient in magnesium exhibit a yellowing of leaves or interveinal chlorosis, which begins in the older leaves. With an increased deficiency of magnesium, symptoms will appear on the younger leaves with the development of necrosis symptoms when the deficiency is very severe.

Magnesium occurs in close association with calcium. Magnesium carbonate is usually found mixed with calcium carbonate in soil lime. Magnesium also occurs on the colloidal complex and is part of the soluble salts in saline soils. It is absorbed in a similar way to calcium as the divalent ion. Magnesium is next highest in concentration to calcium in both soluble and exchangeable form when the soil is neutral to saline. The availability of magnesium declines significantly when the soil pH is less than 5.4.

Plant nutrition shows antagonism between magnesium and calcium and magnesium and potassium



resulting in diminished absorption of one element over the other.

Magnesium deficiency can be induced by high concentrations of either ammonium, potassium or calcium. Magnesium is the poorest competitor among all of these cations.

There are some plant species or cultivars within a species that have a particular sensitivity to magnesium that become magnesium-deficient under moisture or temperature stress even though magnesium levels are sufficient.

Magnesium plant content ranges between 0.15 to 1.00% of the dry weight in leaves with the sufficiency value being 0.25% in the leaf tissue of most crops. Critical values for magnesium may vary among crop species being the lowest for grain crops and highest for legumes and some vegetables and fruit crops. When magnesium is in excess, the magnesium content of leaves increases with age, the highest concentration found in older leaves.

Magnesium deficiency is usually corrected with applications of dolomitic limestone. It can also be corrected with applications of magnesium sulfate or potassium magnesium sulfate.

# ***Managing Young Cows' Reproductive Performance***

*Wayne Jensen*

*The following is a brief synopsis of a talk given by reproductive physiologist Tom Geary, USDA-ARS Fort Keogh, Miles City, MT, at the recent Beef Improvement Federation meeting in Lexington, KY. It may not be possible to utilize all the recommendations mentioned, but it should give some ideas for you to consider in your breeding program.*



It's long been recognized that reproduction is the main limiting factor relative to production efficiency. But there's serious doubt about whether or not the industry has made much progress in improving reproductive efficiency.

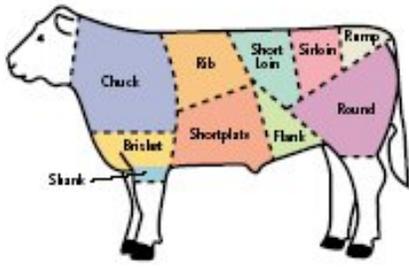
The most common reproductive problem that producers encounter is getting first-calf heifers rebred. This is particularly important because it's estimated that the average replacement female has \$950 invested in her through the time of first calving. Producers simply can't afford to lose a female at this stage of her reproductive life.

The following are some tactics to improve the reproductive performance of young cows via additional inputs, management alternatives, and selection to reduce nutrient requirements of cows:

- ◆ Match the cows to the environment. The genetic potential of the female must be in sync with the production environment. It's essentially impossible to avoid a negative energy balance in young cows.
  - ◆ Manage the young cows appropriately. Calving heifers prior to the start of calving season to allow for the longer postpartum interval of young cows is a good practice. That's if heifers are fed sufficiently prior to calving, and before green grass is available, or the earlier calving date can actually increase the problem.
  - ◆ Develop heifers to 65% of mature weight at breeding. The old rule of 650-700 lbs is correct if a producer has 1,000- to 1,100-lb mature cows. However, in today's herds, mature weights are often 1,250 lbs or more, which means heifers should be weighing 800 lbs at the onset of estrus.
  - ◆ Synchronize heifers to conceive early during a short breeding season. This is a benefit whether bull breeding or using AI.
  - ◆ Artificially inseminate heifers with semen from calving ease proven sires.
- ◆ Provide additional energy during the last 50 days of gestation, so that heifers calve at a minimum body condition score (BCS) of 5. (Recent research suggests that a BCS 6 may be the ideal target for younger cows, both from a rebreeding and calf health standpoint as it relates to transfer of immunity.)
  - ◆ Provide early calving assistance when intervention is needed. After a heifer has spent 1.5 hours in stage 2 labor (hooves visible), every 30-minute delay in providing assistance results in an additional six days to her interval to pregnancy.
  - ◆ Provide young cows with the best feed resources available after calving.
  - ◆ Provide ionophores\* to cows after calving to improve utilization of feed. A summary of five different studies showed that feeding ionophores after calving increases feed costs less than 2 cents/day, but shortens postpartum interval in cows by an average of 18 days, provided adequate energy is available.
  - ◆ Expose young cows to sterile bulls or androgenized cows during the last 30 days before the start of breeding season.
  - ◆ Induce/synchronize estrus cycles in young cows even with natural service.
  - ◆ Consider early weaning during drought and cheap feed availability. Early and permanent weaning holds more promise for improving reproductive efficiency in first-calf heifers than probably all other methods combined.

\* Ionophores are compounds included in diets of growing and finishing cattle to improve feed efficiency and animal health.





## Results of the 2003 Beef Carcass Evaluation

Wayne Jensen

The following is an overview of the results of the carcass evaluation of the steers exhibited and sold at the 2003 Santa Barbara County Fair. To begin, I must say this is one of the "best" sets of data I've seen in the many years I have been involved in this carcass evaluation program.

The number of carcasses this year totaled 48. While this is lower than it has been in the past, it does reflect the increase in the number of replacement heifers that have become the dominant beef project for the exhibitors at the fair.

In summary, the 48 steers had an average weight of 1,223 pounds with an average carcass weight of 783 pounds, a quality grade of Choice, and a yield grade of 2.3. Two thirds of the carcasses had a quality grade of Choice or better. Thirty of the carcasses qualified to receive recognition from the California Beef Cattle Improvement Association's Carcass of Merit program. The exhibitor of the steer that had the high indexing carcass was Leah Satterfield from Lompoc FFA. The breeder of this steer was J & A Farms in Lompoc.

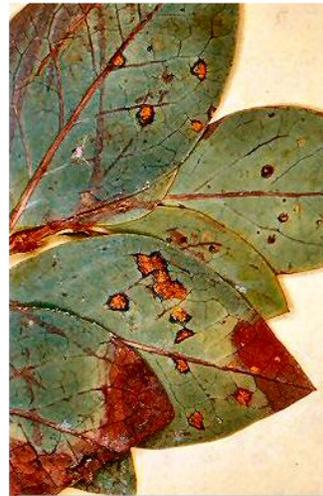
If you would like a copy of this carcass data, call our office (805/934-6240) or log on to our website <<http://cesantabarbara.ucdavis.edu/carc2003.pdf>>

## Leaf Rust in Blueberries

Franklin Laemmlen

Several growers on the Central Coast have reported moderate to severe leaf drop in their blueberry plantings. The leaf drop was diagnosed as being caused by leaf rust. This disease has become a serious enough problem on the Central Coast to warrant some control practices. I think the disease was initially introduced to this new growing region on nursery stock brought in to California from southeastern propagation sources. With the mild Central Coast climate, blueberries do not go dormant and lose their leaves. Hence, the rust can remain active in the yellow spore (uredinospore) stage all year round.

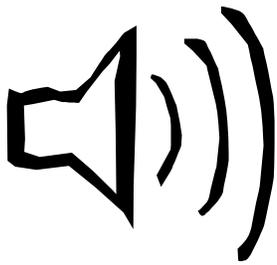
Leaf rust in high bush blueberries is caused by *Pucciniastrum vaccinii*. This fungus causes yellow leaf spots, which usually appear by mid-summer (June-July-August). Spots on the upper leaf surface turn reddish-brown. Opposite these spots (lower leaf surface), yellowish-orange uredinia are present. These pustules rupture to liberate yellow spores (uredinospores), which can be windborne to start new infection sites. When



numerous infections occur per leaf, premature defoliation occurs. Some defoliation will not impact yield, but repeated or severe defoliation will reduce plant vigor and will negatively affect yield in next year's crop.

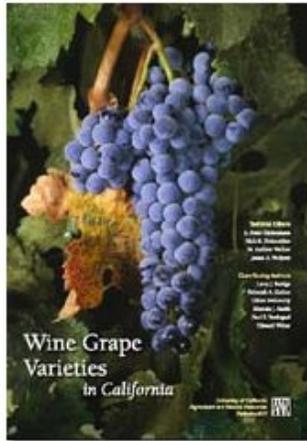
No definitive fungicide trials have been conducted. However, several fungicides are registered for use on blueberries which will help to control rust. Chlorothalonil, copper fungicides, triforine and sulfur will help to suppress leaf rust. Apply a single spray in June/July when the first leaf lesions caused by rust appear. Then monitor the bushes. A second application may not be necessary, unless leaf infections and leaf drop appear to be increasing.





# Announcements . . .

◆ **Wine Grape Varieties in California** is the title of a new book recently published by the UC Division of Agriculture and Natural Resources. This full-color, 185-page volume is a scholarly presentation of wine grapes and wine grape culture in California. Besides the above general discussion, 36 wine grape varieties are presented in detail with a full-page color picture of the variety plus a discussion of origin, specific requirements for best culture, harvest dates by variety and location, and uses of the variety. This book will make a wonderful Christmas present and is a must for all wine grape growers, wine makers, wine connoisseurs, and those who want to know more about this industry. "Wine Grape Varieties of California," (publ. 3419), costs \$30.00 plus tax and is available from your Cooperative Extension Office. Make checks payable to: U.C. Regents. Call (805) 934-6240 for more information.



For a registration form and/or more information, phone (831) 442-3536. Also log on to: <[www.papaseminars.com](http://www.papaseminars.com)>

◆ A recently published book suggests ways agricultural employers, managers, and supervisors can cultivate greater productivity and reduce turnover among employees. **Labor Management in Agriculture: Cultivating Personnel Productivity** is the title. Copies are available in English or Spanish for \$12.50 per copy plus

tax. Contact our office (805/934-6240) or call Elizabeth Resendez (209/525-6800) for a copy or more information.

◆ The May/June 2003 issue of the **University of California Giannini Foundation** magazine **Update** has several articles of interest to agriculture: (1) Trade Horizons for California Agriculture. (2) Not so COOL? Economic Implications of Mandatory Country-of-Origin Labeling. (3) Do Farms Provide More Than Food? Public Perspectives in California. If you would like a copy of one or all the above articles, contact our office at (805) 934-6240.

◆ For information on **Biotechnology** log on to: <[ucbiotech.org](http://ucbiotech.org)> and browse.

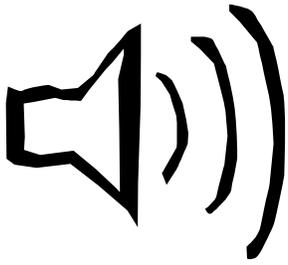
◆ The **Pest Science Conference** is scheduled for Thursday, December 18, 2003, at UC Davis in the Buehler Alumni/Visitor Center. This is a full-day conference, starting at 8:30 a.m. The conference features current research at UC Davis. Among this year's topics are: Pesticides and Water Quality, West Nile Virus, Insecticide Resistance, Application Equipment (Update), New Pesticides, and more. Registration fee is \$50.00, and there will be 6 hours of CE credit available. The fee includes lunch and handouts. Call (805) 934-6240 for more information and/or a registration form.

◆ If you need **Continuing Education [CE] hours** before the end of 2003, there are several PAPA Seminars in reasonable proximity to the Central Coast:

October 28	Salinas
October 28	Bakersfield
November 5	Santa Maria
November 18	Oxnard
December 5	Visalia



◆ The **San Luis Obispo Master Gardener program** is soliciting recruits for its 2004 class. If you are interested in becoming a Master Gardener, contact: Mary Hintz at (805) 937-1861, or Linda Hauss at (805) 545-0937 for more details.



## Announcements . . .

- ◆ The **10th Annual International Research Conference on Methyl Bromide Alternatives and Emissions Reduction** will be held in San Diego, CA, from November 3-6, 2003. The conference will be held at the Double Tree San Diego-Mission Valley Hotel. Call 1-800-222-TREE for hotel reservations. Call (805) 934-6240 for a registration form.
- ◆ The Santa Barbara County Weed Management Group will hold the **2003 Noxious Weeds Seminar** on Monday, November 3, 2003, at the Royal Scandinavian Inn, Solvang, Calif. This year's theme is "Invasive Ornamentals - The Problem and Alternatives." The registration fee is \$40. Six hours are available for CE credit. Call (805) 934-6240 for a program and registration form.
- ◆ You are invited to attend the **2003 California NPS Conference** (Nonpoint Source) to be held at the Sheraton Four Points Hotel in Ventura, CA, on November 5, 6, 7, 2003. Water quality specialists, watershed coordinators, landowners, and others wishing to gain and exchange information on pollution prevention, TMDLs, water quality, restoring watersheds, clean water and more should attend. This conference is sponsored by the California State Water Resources Control Board (SWRCB), the California Regional Water Quality Control Boards (RWQCB), and the USEPA, Req 9. Go to <http://www.swrcb.ca.gov/nps/fall2003.html> for conference information.
- ◆ The **North American Direct Marketing California Farm Conference** will be held at the Sheraton Grand in Sacramento from February 2-4, 2004. The 2004 conference includes a farms tour and a marketing tour, trade show, workshops, and paper sessions. For more program information call (805) 934-6240.
- ◆ The **11th Annual Fertilizer Research and Education Program Conference** will be held November 20, 2003, at the Edison Ag TAC in Tulare, CA. The one-day conference presents research findings from projects funded by the CDFAs Fertilizer Research and Education Program (FREP). CCA and PCA hours are available, and all persons in agriculture and agribusiness are invited. The registration fee is \$50 until November 1 and \$60 thereafter. For a program and registration information call (805) 934-6240.
- ◆ **Pesticides for Specialty Crops** is the title of a leaflet (publ. #7253) recently published from the UC Small Farms Center. It is a useful reference to pesticides registered on all manner of small acreage and specialty crops. You can access an electronic version of this publication at <http://anrcatalog.ucdavis.edu> or call (805) 934-6240, and we will mail you a copy.

Franklin Laemmlen, Editor  
County Director/Vegetables & Pest Management Advisor

Contributing authors:

Wayne Jensen, Livestock & Natural Resources Advisor  
Mark Gaskell, Small Farms & Specialty Crops Advisor  
Warren Bendixen, Strawberries/Soils & Water Farm Advisor

### DID YOU KNOW . . . ?

*Aoccdrmig to a rscheearch at Cmabrigde Uinervtisy, it deosn't mittaer in waht oredr the ltileers in a wrod are, the olny iprmoetnt tihng is taht the frist and lsat ltteer be at the rghit pclae. The rset can be a total mse, and you can siill raed it wouthit porbelm. Tih is bcuseae the huamn mnid deos not raed ervey lteter by istlef, but the wrod as a wlohe.*

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- I wish to continue receiving a copy of the CCAH newsletter by U.S. mail.
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Signed: \_\_\_\_\_

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UC Cooperative Extension  
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Santa Maria, CA 93455