

## ALFALFA WEB RESOURCES OVERVIEW: ACCESS & LINKS

Jerry L. Schmierer<sup>1</sup>

### ABSTRACT

The use of the Internet to retrieve information has exploded over the last several years. This symposium has presented cutting edge presentations on the use of computers and information technology several times over the last 22 years. Now, more than 50% of farmers have computers and use the Internet to retrieve information. The web site for the California Alfalfa Workgroup <http://alfalfa.ucdavis.edu> has a wealth of forage related information and links to other sites. Looking beyond the current usage, the Internet and the technology that is behind the Internet provides a vast opportunity to access information in a new and important way. The concept of Precision Agriculture utilizes this technology and can provide useful and timely information that can aid in better decision making by farm and business managers.

**Key Words: Internet, Web, Precision Agriculture, Computers, Information Technology, Remote Sensing**

### INTRODUCTION

When looking at the title of this presentation, one might ask: **Access and Links to What?** Access to **“information”** and linkage to that information as well as to each other is what will be discussed. There is a vast array of information on the Internet today. Public sites such as University and Cooperative Extension sites are providing more of their information in an on-line format. Sites from private companies offer a variety of information, resources and products that are at times free for the clicking and sometimes offered for sale. You or your own company or farm may have a web site with your offerings potentially reaching the whole world. The Internet is a borderless media that offers an inexpensive method of reaching the masses, from your next door neighbor to a person on the other side of the globe. This sharing of information has indeed brought us closer together.

The Internet and its technology have brought new forms of communicating with each other. Email and web sites are the most obvious. Instant messaging, IP phones, hand held computers and even cell phones are now mixing and matching so that the way we communicate in the future will have many different methods of access, but a common interface. We will be able to make a phone call, retrieve email, visit web sites, access data from a database, upload data to a database, send and retrieve pictures, and know where we are located (GPS). All of this can be done with a single device that utilizes information technology. Many of these things are not common place yet, but as the cost of the devices and the services come down and the ease of use increases, more and more people will have and use them.

---

<sup>1</sup> Jerry L. Schmierer, UCCE Farm Advisor, Colusa, Sutter, Yuba and Glenn Counties, 100 Sunrise Blvd. Suite E, PO Box 180, Colusa, CA 95932; Email: [jlschmierer@ucdavis.edu](mailto:jlschmierer@ucdavis.edu) **In:** Proceedings, California Alfalfa and Forage Symposium, 17-19 December, 2003, Monterey, CA, UC Cooperative Extension, University of California, Davis 95616. (See <http://alfalfa.ucdavis.edu> ).

Even with all these advances, the “so what” question needs to be answered. Will this technology aid us in our business decisions, can we make better use of our resources and will it be done in a timelier manner? I think it will. Looking back at this symposium, there have been presentations like this given over the last 22 years. First it was the use of computers to compute cattle rations, scheduling irrigation, and compiling data for better alfalfa crop care. Then in 1996, David Hannaway gave us a presentation in San Diego that wowed us with his use of PowerPoint and the emerging Internet. Since then Tim Hayes and myself have given several talks on Internet resources. I was given the charge for this symposium to give an update on the resources available on the Internet. I will give some of the usual web site information like we have done in the past, but I will also try to push the envelope a little by presenting some of resources that are available for moving into “Precision Agriculture”.

### UNIVERSITY ALFALFA AND FORAGE SITES

Many universities through out the U.S. have sites devoted to alfalfa and forage production. But since this symposium is put on by the UC California Alfalfa Workgroup, that site <http://alfalfa.ucdavis.edu> will receive top billing.

The screenshot shows a web browser window with the address bar displaying <http://alfalfa.ucdavis.edu>. The main content area includes:

- A circular logo for the **ALFALFA WORKGROUP UNIVERSITY OF CALIFORNIA** featuring a green alfalfa plant.
- The title **California Alfalfa & Forages** in large blue font.
- Text: **Webpage of the UC California Alfalfa & Forage Systems Workgroup –University of California information about Forages!**
- A photograph of three fluffy owl chicks in a nest.
- A quote: **"Alfalfa...Ice Cream in the making!!!"<sup>TM</sup>**
- Text at the bottom: **authors of this site: [D. H. Putnam](#), Forage Specialist, UC Davis and [Jerry Schmeirer](#), UC CE Farm Advisor, Colusa Co.**
- A left-hand navigation menu with three items:
  - New Alfalfa Seedling Weed Control Publication (click here)** with a thumbnail of a field.
  - Soil-Moisture Monitoring** with a thumbnail of a landscape.
  - New Irrigation Publication and Spreadsheet (click here)** with a thumbnail of a field with birds.

There is quite a list of information types available through this site. Production information in the form of publications, weed control, irrigation, pest management, current hay prices and hay sampling certification are among a few of the links available. There are links to other university web sites such as the Forage Information System (Oregon), Purdue, Ohio, Penn State, Cornell, Oklahoma, and Wisconsin just to name a few. There are also links to organizations and private companies that offer alfalfa or forage related material on their sites.

There are two sections of the California Alfalfa Workgroup site that are worth highlighting. There are two databases linked to this site. One is for the proceedings from this symposium. There you can search for keywords in the title or keyword section, by author or by year of the symposium. That will bring you to a results page that has links to the actual papers in a PDF format.

Title	Author	Year
<a href="#">MONITORING SOIL MOISTURE FOR MAXIMUM PROFIT IRRIGATION OF ALFALFA</a>	BLAINE HANSON, STEVE ORLOFF	2002
<a href="#">USING EVAPOTRANSPIRATION DATA TO SCHEDULE IRRIGATION OF FORAGES</a>	ROBERT W. HILL	2002
<a href="#">TOTAL MAXIMUM DAILY LOADS (TMDLs) IN ALFALFA-THE IMPLICATIONS FOR ALFALFA IRRIGATION MANAGEMENT</a>	TERRY L. PRICHARD	2002
<a href="#">IRRIGATION MANAGEMENT IMPROVE RIVER WATER QUALITY</a>	K.M. BALI, J.N. GUERRERO, F.G. ESCOBOZA, A. SANTOS, I. ESCABOSA, M.D. STUTES	2002
<a href="#">SUBSURFACE DRIP AND FURROW IRRIGATION COMPARISON WITH ALFALFA IN THE IMPERIAL VALLEY</a>	R.B. HUTMACHER, C.J. PHENE, R.M. MEAD, D. CLARK, S.S. VAIL, C.A. HAWK, M.S. PETERS, R. SWAIN, T. DONOVAN, J. JOBES AND J. FARGERLUND.	2001
<a href="#">MANAGEMENT OF SPRINKLER IRRIGATION SYSTEMS</a>	HILL, R.W.	2000
<a href="#">SUBSURFACE DRIP IRRIGATION OF ALFALFA IN NEVADA</a>	NEUFELD, J., DAVISON, J., BREAZEALE, D., MUNK, G.	1998
<a href="#">IMPROVED IRRIGATION MANAGEMENT THROUGH SOIL MOISTURE MONITORING</a>	ORLOFF, S.B., HANSON, B.	1998
<a href="#">APPLYING IRRIGATION SCHEDULING PRINCIPLES TO ALFALFA</a>	CARLSON, H.L.	1996

The web site provided alfalfa variety trial yield results in the normal fashion, tabular data for each variety in each trial. There is also a database that combines data for varieties over all the years and locations to give a broader perspective in comparing the various varieties. With this

database, you can search by variety name, location of the trial or by year planted. The following is an example of the results attained by one of these searches.



Location:	Name of Alfalfa Variety:	Yield % of Check	LSD %	Check Variety	Check Yield	# of Cuts	Year Planted	# of years	Progress Report #
AR	532	114	12.7	VER	4.72	8	09-01-1982	4	164(83-84)
AR	CAW 937	101.4	12.7	VER	4.72	8	09-01-1982	4	164(83-84)
AR	Cimarron	104.9	12.7	VER	4.72	8	09-01-1982	4	164(83-84)
AR	DK 135	122.1	12.7	VER	4.72	8	09-01-1982	4	164(83-84)
AR	Oneida	115.1	12.7	VER	4.72	8	09-01-1982	4	164(83-84)
AR	RS 209	115.3	12.7	VER	4.72	8	09-01-1982	4	164(83-84)
AR	X2	85.5	12.7	VER	4.72	8	09-01-1982	4	164(83-84)
AR	WL 312	102.5	12.7	VER	4.72	8	09-01-1982	4	164(83-84)
AR	Atra 55	103.2	12.7	VER	4.72	8	09-01-1982	4	164(83-84)
AR	FSRC H-103	100.2	12.7	VER	4.72	8	09-01-1982	4	164(83-84)
AR	Vernal	100	12.7	VER	4.72	8	09-01-1982	4	164(83-84)
AR	Peak	107.5	12.7	VER	4.72	8	09-01-1982	4	164(83-84)
AR	Blazer	119.3	12.7	VER	4.72	8	09-01-1982	4	164(83-84)
AR	Magnum	106.5	12.7	VER	4.72	8	09-01-1982	4	164(83-84)
AR	Apollo	100.7	12.7	VER	4.72	8	09-01-1982	4	164(83-84)
AR	Spredor II	103.8	12.7	VER	4.72	8	09-01-1982	4	164(83-84)

### MOVING TOWARD PRECISION AGRICULTURE

The concept of precision agriculture is advancing and the Internet is providing an important delivery tool for downloading and uploading information. We are now able to download satellite image data that is only hours old, get real time market information to a PDA or cell phone, collect field data on hand held computers that can upload the information to a main database and get information from that database for on the spot field decisions. Private industry is developing an array of software packages that ease in this data collection and recovery. All of this puts more and timelier information into the hands of managers so that they can hopefully make better decisions.

We have come a long way in moving towards more precise agriculture since the beginning of grid soil sampling. Now we are looking at field management zones that cut costs and improve accuracy. These zones can either be developed by yield monitoring, remote sensing by aircraft or satellite or a combination of both methods. We are collecting field data with relatively precise location information because GPS equipment and technology has developed and is reasonable in price. Super precise GPS equipment has made farm implement guidance and steering a reality. Its acceptance and use is due to the big cost savings that it provides. Etching out a profit in

agriculture is going to rely more and more on keeping costs low and maximizing profitability for smaller and smaller management units.

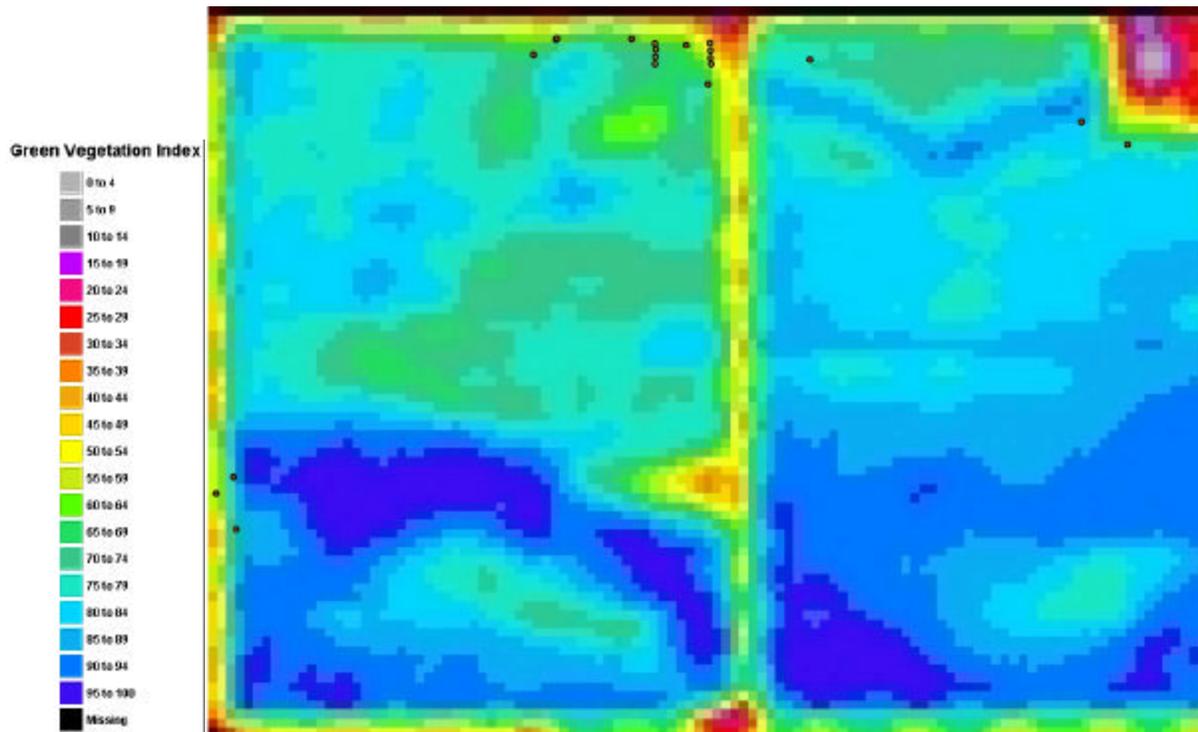


Image courtesy of DigitalGlobe

This is an image of an alfalfa field where there is a high level of variation in crop growth. When I started working with the image from this field, it became obvious to me that I needed to adjust my soil and tissue sampling so that I took samples from like areas instead of just a random sample across the field. After adjusting the sampling procedure, we found that one end of the field had extreme nutrient deficiencies while the nutrient level on the other end was more than adequate. A random composite sample did not determine this problem. This image was downloaded from DigitalGlobe, just 48 hours after the satellite took the image.