Imperial County Agricultural Briefs

Features

From your Farm Advisors

March, 2009

WATER CONSERVATION PRACTICES - SURGE IRRIGATION

Khaled M. Bali

Surge irrigation is a relatively new concept in surface irrigation. It was first introduced in 1979 at Utah State University. Surge flow irrigation is defined as the intermittent application of water to a field (a series of on and off periods of constant or variable duration). It is commonly used to reduce infiltration rates and improve irrigation efficiency. Application or irrigation efficiency and distribution uniformity are greatly influenced by infiltration rate, flow rate, field length, slope, irrigation time, soil texture, and other factors.

In surface irrigation systems, uniformity is influenced by the length of time it takes for the water to reach the end of the field. If the soil is uniform and irrigation time is constant, more water infiltrates at the upper end of the field than the lower end because of the time it takes for the water to advance to the end of the field. For example, if the total irrigation time is eight hours and it takes five hours for the water to advance to the lower end of the field, then the differences in infiltration time (or intake opportunity time) between the lower end and the upper end is three hours. Differences in intake opportunity times (IOT) across the field, result in uneven distribution of water and therefore lower application efficiency. Improving irrigation efficiency can be achieved by reducing differences in IOT across the field. Surge irrigation alters the infiltration process in most soils and can be used to reduce differences in IOT and improve irrigation efficiency.

Surge flow irrigation has the potential to improve irrigation efficiencies in soils with moderate to high infiltration rates (light soils). However, it has little to no impact on heavy soils due to the nature of the infiltration process in these soils. Generally, the infiltration rate depends on IOT, most of the water enters the soil at a rapid rate at the beginning of irrigation and the rate slows down to a constant level after a few hours (depending on soil texture and initial soil moisture status). In heavy soil, the process is slightly different, most of the water infiltrates the soil early on during the irrigation event and very little water infiltrates toward the end of irrigation. Therefore surge irrigation may not be useful on heavy soils because of its limited impact on the infiltration process in these soils. Surge irrigation is most useful when the distribution uniformity is low due to differences in infiltration rates or in situations where two or more soil textures exist in a single field.

Organic Producer Certification

Mark A. Trent

Organic farming is a form of agriculture that relies on crop rotation, green manure, compost, biological pest control, and mechanical cultivation to maintain soil productivity and control pests. In addition, organic farming excludes or strictly limits the use of synthetic fertilizers and synthetic pesticides, plant growth regulators, livestock feed additives, and genetically modified organisms. Since 1990 the market for organic products has grown at a rapid pace, averaging 20-25 percent per year to reach $33 billion in 2005. This demand has driven a similar increase in organically managed farmland. Approximately 75.6 million acres worldwide are now farmed organically, representing approximately 2% of total world farmland.

Organic agricultural methods are internationally regulated and legally enforced by many nations, based in large part on the standards set by the International Federation of Organic Agriculture Movements (IFOAM), an international umbrella organization for organic organizations established in 1972. IFOAM defines the overarching goal of organic farming as follows:

"Organic agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved."

Organic production in California is regulated by the California Department of Agriculture (CDFA) Organic Program. CDFA's Organic Program is responsible for enforcement of the federal Organic Foods Production Act of 1990, and the California Organic Products Act of 2003. These statutes protect consumers, producers, handlers, processors and retailers by establishment of standards under which fresh agricultural products/foods may be labeled and/or sold as "organic".

Enforcement activities are coordinated with the California Organic Products Advisory Committee, the USDA and California County Agricultural Commissioners. Activities include: program administration,

County biologist training, initiation of complaint investigation, registration of private certification organizations, and act as an information resource on the California Organic Products Act and California's organic industry. CDFA's Organic Program is funded by industry registration fees, a portion of which is used to support County enforcement activities.

Certification process:

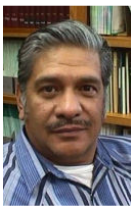
Organic certification in California is a two step process. The first step is to apply for certification with a registered private certification organization. There are many organizations registered with the CDFA. Although requirements for certification are similar among these organizations, cost of certification, and level of political advocacy, public relations support, or other services may vary**.** Certification costs typically include three factors: 1) Application cost, 2) Inspection cost, and 3) Annual certification cost. Certification costs are typically calculated on the Gross Organic Production Value of the certified products. For example, one certification organization advertizes a onetime application cost of $275, with an average inspection cost of $500. Their annual certification cost ranging from $170 for organic production value below $10,000 and up to $20,500 for organic production value of over $15,000,000. For a complete list and contact information for organic certification organizations registered with the CDFA go to:
http://www.cdfa.ca.gov/is/docs/CertifiersListNew.pdf or the Imperial County Agricultural Commissioners office.

After successful certification from a private certification organization, registration with the CDFA Organic Program is required. This can be done through the County Agricultural Commissions office. Requirements for registration include: 1) Proof of ownership or permission from owner to register a parcel as organic, 2) Site history declaration covering 36 months, 3) Location map including dimensions, boundaries, and adjacent land uses, 4) Substance list covering 36 months, 5) Proof of certification, 6) Pesticide use report covering 36 months. Registration fees are calculated based on gross sales by the registrant of products sold as organic in the calendar year that precedes the date of registration or if no sales were made in the preceding year, then based on the expected sales months following the date of registration. Registration fees range from: $25 for gross sales under $5000 and up to $3000 for gross sales over $25,000,000.

The United States Department of Agriculture has provided funds to the California Department of Food and Agriculture to be distributed to operations that have been certified organic by a USDA accredited certifier. Eligible entities may be reimbursed up to 75% of their organic certification costs up to $750. Any operation in California that has received organic certification on or between October 1, 2007 and September 30, 2008 and/or October 1, 2008 and September 30, 2009 may apply for reimbursement. See the Imperial County Agricultural Commissioners office for more information.

Be an Alfalfa Expert

Juan N. Guerrero



At UC Cooperative Extension (UCCE) we are averse to being "peddlers" and "hawking" specific products. However, many times there are exceptions to general rules. At the 2008 Alfalfa Symposium held in December in San Diego, the University of California Cooperative Extension formally introduced a new publication; ***Irrigated Alfalfa Management*** *for Mediterranean and Desert Zones* (Publication 3512), edited by Charles G. Summers and Daniel H. Putnam. If ever there was a single publication for the alfalfa producers in the irrigated desert, *this is it*! This 372 page book has 24 chapters written by 34 authors regarding everything you ever wanted to know about commercial alfalfa production.

This publication has chapters regarding: choosing an appropriate site to plant, choosing an appropriate variety, seed establishment, fertilization guidelines, irrigating in the desert, weed management, disease management, insect control, harvesting guidelines, alfalfa hay quality, livestock use of alfalfa, grazing guidelines, organic alfalfa production, seed production, alfalfa marketing strategies, and diagnostic guidelines for alfalfa field problems. Of the 34 authors, three are located at the UCCE office in Holtville; so specific local alfalfa production guidelines are referenced. The three local authors contributed to five of the 24 chapters.

Irrigated Alfalfa Management *for Mediterranean and Desert Zones* (Publication 3512), edited by Charles G. Summers and Daniel H. Putnam may be purchased for $65 (plus tax) at the local UCCE office, located at 1050 E. Holton Rd. in Holtville; a judicious purchase.

Corn Earworm Insecticide Efficacy Trial on Sweet Corn

Eric T. Natwick

A stand of sweet corn var. Bodacious R/M was established at UC Desert Research & Extension Center on 29 February 2008. Stand establishment was achieved using overhead sprinkler irrigation, with furrow irrigation used thereafter. Plots were 2-beds wide by 50 ft long and bordered by two untreated beds. Three foliar insecticide treatments were compared to an untreated check and were replicated four times in a randomized complete block design. Insecticide treatments and rates are listed in Table 1.

The applications were made with a handheld CO_2 sprayer operated at 40 psi delivering 22 gpa. A broadcast application was delivered through 2 TJ80015 nozzles per bed. The adjuvant, Methoxylated Oil (RNA Inc.), was applied at 0.5% v/v with all treatments. Evaluation of treatments were based on the number of live corn earworm larvae (CEW) per ten randomly selected corn ears per plot and damage assessments were made by examining ten corn ears per plot for feeding damage and frass. All insecticide treatments were applied on 7, 10, 13, and 17 May with one exception; Coragen (5 fl oz) was not applied on 10 May. Data sets were analyzed using 2-way ANOVA and means were separated by a protected LSD ($P<0.05$).

The CEW pressure was low to moderate during the study. There were no significant differences ($P = 0.05$) among the treatments means for CEW counts from 9 May through 19 May (Table 1). All insecticide treatments for CEW means were lower than the untreated check on 21 May and for the post treatment. There were no differences among the treatments for CEW damage from 9 May through 15 May (Table 2). All insecticide treatments except Coragen 1.67 SC @ 3.4 oz/acre had means for CEW damage that were significantly lower than the check treatment mean on 19 May. All insecticide treatments had means for CEW damage that were significantly lower than the untreated check on 21 May and for the averaged post treatment damage assessment. Although the numbers of CEW not high, it appears that all of the insecticide treatments had efficacy against CEW. No phytotoxicity was observed.

Table 1.

		CEW per 10 ears					
Treatment	Oz/acre	9 May	12 May	15 May	19 May	21 May	Average[z]
Check	--------	0.075 a	0.050 a	0.250 a	0.675 a	0.975 a	0.405 a
*Coragen 1.67 SC	3.4	0.025 a	0.000 a	0.125 a	0.575 a	0.325 b	0.210 b
*Coragen 1.67 SC	5.0	0.025 a	0.025 a	0.175 a	0.375 a	0.500 b	0.220 b
Asana XL	9.6	0.025 a	0.075 a	0.150 a	0.275 a	0.350 b	0.175 b

* Not registered for this use at the time of publication
[z] Post Treatment Averages.
Means within columns followed by the same letter are not significantly different, ANOVA; LSD ($P<0.05$).

Table 2.

		Percentages of CEW damaged sweet corn ears					
Treatment	Oz/acre	9 May	12 May	15 May	19 May	21 May	Average[z]
Check	--------	20.0 a	15.0 a	32.5 a	57.5 a	72.5 a	39.5 a
*Coragen 1.67 SC	3.4	7.5 a	5.0 a	12.5 a	42.5 ab	32.5 b	20.0 b
*Coragen 1.67 SC	5.0	2.5 a	10.0 a	25.0 a	27.5 b	45.0 b	22.0 b
Asana XL	9.6	10.0 a	7.5 a	20.0 a	20.0 b	37.5 b	19.0 b

* Not registered for this use at the time of publication

[z] Post Treatment Averages.
Means within columns followed by the same letter are not significantly different, ANOVA; LSD ($P<0.05$).

WELCOME

Dr. Donna Henderson appointed as the new Plant Pathology Farm Advisor
UC Cooperative Extension in Imperial County

I am pleased to announce that Donna Henderson has accepted the position of Plant Pathology Farm Advisor UC Cooperative Extension in Imperial County. Dr. Henderson will begin her new appointment as Plant Pathology Farm Advisor on March 2, 2009.

Imperial County comprises a major component of California's agricultural production with a gross value of nearly $1.4 billion in 2007. In 2007, Imperial County produced over $955 million worth of vegetable, field, fruit seed and nursery crops. All of these crop plants are threatened by plant disease organisms. Dr. Henderson will fill a much needed void providing plant disease education and research to assist pest control advisors and growers in Imperial County.

Dr. Henderson earned her B.S. degree in Biology at the University of Idaho in 2002 and a M.S. degree in Plant Science at the University of Idaho in 2004. She earned her Ph.D. in Plant Pathology at Washington State University in 2008. Donna is leaving her position as a lecturer at Mount Mercy College in Cedar Rapids, Iowa to join the Cooperative Extension staff in Imperial County. She has experience working directly with farmers and consultants on nematode and foliar pathogen research and education.

Dr. Henderson will be a much need addition to the Cooperative Extension staff in Imperial County and will bring her expertise to help growers and PCA's manage plant diseases in our diverse cropping system. Please join me in welcoming Donna Henderson to the Imperial County UC Cooperative Extension Office and to the Central Coast and South Region!

CIMIS REPORT

Khaled Bali and Steve Burch*

California Irrigation Management Information System (CIMIS) is a statewide network operated by California Department of Water Resources. Estimates of the daily reference evapotranspiration (ET_o) for the period of December 1 to February 28 for three locations in the Imperial County are presented in Table 1. ET of a particular crop can be estimated by multiplying ET_o by crop coefficients. For more information about ET and crop coefficients, contact the UC Imperial County Cooperative Extension Office (352-9474) or the IID, Irrigation Management Unit (339-9082). Please feel free to call us if you need additional weather information, or check the latest weather data on the worldwide web (visit http://tmdl.ucdavis.edu and click on the CIMIS link).

Table 1. Estimates of daily Evapotranspiration (ET_o) in inches per day

Station	December		January		February	
	1-15	16-31	1-15	15-31	1-15	16-28
Calipatria	0.07	0.07	0.08	0.09	0.12	0.14
El Centro (Seeley)	0.06	0.06	0.08	0.09	0.12	0.14
Holtville (Meloland)	0.06	0.06	0.08	0.09	0.12	0.14

* Irrigation Management Unit, Imperial Irrigation District.