MARCH 1991

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DAIRY CATTLE DAY
The 30th annual Dairy Cattle Day will be held on the Davis Campus of the University of California on Wednesday, March 27, 1991. The morning program includes topics on raw milk quality, reduced cholesterol content of dairy products, determining the economic value of alfalfa hay, a vaccine for coliform mastitis, and hormone concentrations in the blood of dairy cattle. The afternoon program consists of topics on environmental issues, the effect of budgetary reductions on University of California programs, impacts of the 1990 Farm Bill as viewed by processors, producers, and economists, and concludes with a demonstration of the uses of ultrasound in dairy cattle reproduction.

Workers Pesticide Safety Training
Sponsored by: University of California Cooperative Extension and Madera County Farm Bureau

Where: Madera High School Cafeteria, 200 South L Street, Madera

When: Wednesday, March 27, 1991

Who: For Farm Workers Who Handle any Pesticides

What: 1 1/2 Hours of Training in Pesticide Safety and Regulations

Agenda
8:00 a.m. Registration for Spanish Session/Refreshments
8:30 a.m. Spanish Session
10:00 a.m. Registration for English Session/Refreshments
10:30 a.m. English Session
12:00 noon Adjourn

Please note: There will be two sessions - the first will be only in Spanish, and the second will only be offered in English.

Growers and their employees who handle pesticides are urged to attend. Topics will include pesticide safety practices, protective clothing and equipment, worker safety regulations, re-entry and posting requirements and administrative enforcement changes. This training session is to help provide some basic instructions regarding the handling of pesticides. Help yourself and your employees to become safer in pesticide procedures.

IN THIS ISSUE
Dairy Cattle Day............................................................ 1
Workers Pesticide Safety Training................................. 1
Growing Corn Silage with a Limited Water Supply............. 2
Open Forum.................................................................... 4
Future Meetings............................................................ 4

(Continued on page 4)
Growing Corn Silage with a Limited Water Supply
by Dan Munk, Fresno County Farm Advisor

The recent drought has brought about changes in the way some growers view water role on the farm. The common question being asked has changed from when to plant, to how much acreage can be planted. A renewed interest in deficit irrigation practices is again seen as the best way to maximize profits when water is limited. From land preparation to harvest, there are in fact ways to stretch your limited water supply and still come out ahead.

Land Preparation

Today's technology has provided us with remarkable tools such as levelers which help us in water conservation. A properly leveled field can decrease the time water takes to cover the field and assists in applying water with a high degree of uniformity. A high uniformity of applied water means equal amounts of water are applied over the entire field.

Consequently; three feet of a sandy loam soil will store:

3.0 feet x 1.2 inches = 3.6 inches of water foot
or 3.6 acre inches on one acre of land.

Assuming the soil is "bone dry" we could then proceed to apply 3.6 acre inches. This is however a poor assumption. The previous crop that was grown, most probably only depleted about 50 percent of the total water in the soil. Therefore, only about half of the 3.6 acre inches is necessary or 1.8 acre inches.

Flood and furrow irrigated fields commonly have irrigation efficiencies of about 70 percent. This means to meet crop needs, an additional 30 percent of water should be applied.

1.8 acre inches x .30 = 0.54 acre inches
1.8 acre inches x 0.54 acre inches = 2.3 acre inches

Therefore total field applied water for a sandy loam soil is about 2.3 acre inches. This is of course a figure used without considering any rainfall. Late spring rains may contribute all or part of this future.

Seasonal Irrigations

In a similar manner, irrigation scheduling strategies based on irrigating at 50 percent depletion of the soil is good practice. In the example of the sandy loam soil we would then irrigate after the crop uses about 1.8 inches, or 50% of the total 3.6 inches that can be stored.

In the case of a limited water supply, late season irrigation practices may be modified once a good plant canopy has developed throughout the field. Deficit irrigation practices for mid and late season irrigations may include soil depletions of 60% without dramatic reductions in yield. Therefore delaying irrigations during the later growth stages...
may be desirable. In our example, a 60 percent soil water depletion would translate into an irrigation after 2.2 inches of crop water use.

Crop Water Use

How much water does corn silage use? In any given month, the crop will use different amounts of water depending on availability, growth stage and daily evaporative demand. Although these figures vary from month to month and day to day, long term average water use trends have been established. The following figure helps explain these trends.

Water use is minimal early in the season when the crop is establishing root and foliage biomass. It may take three to four weeks before depleted to 50 percent for the first two irrigations. By June a good plant canopy has developed and higher temperatures have increased leaf transpiration. Scheduling frequency now should be much higher and irrigations may be necessary every nine to 11 days. In July, water use by the crop is maximum and the highest irrigation frequency should be employed. Irrigations during this peak period should be spaced about seven to eight days apart.

The end of July should signal the end of irrigations for silage corn planted April 15. If planted May 15, cut irrigations one month later.

Field Variation

Keep in mind the proceeding exercise is a sample calculation used with the assumptions from typical fields in the San Joaquin Valley. Deviation from normal weather conditions can change scheduling as can changes in field stored soil moisture.

A new set of calculations should be established based on soil texture or water holding characteristics of the field in question. Applying this information to the water consumption figure described above can assist you greatly in setting up a seasonal schedule for field irrigations. If substantial weather changes occur which deviate from normal, plan on scheduling the irrigation a day or two later when cooler or one to two days earlier if warmer.

### Normal Year Water Consumption for Grain or Silage Corn in the San Joaquin Valley

<table>
<thead>
<tr>
<th>Acre-inches/Acre</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Total</th>
</tr>
</thead>
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<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.6</td>
<td>2.5</td>
<td>6.9</td>
<td>9.3</td>
<td>6.9</td>
<td>1.8</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>28</td>
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</tbody>
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**Emergence 4/15, Harvest 9/15**