IMPROVEMENT OF THE DECISION SUPPORT SYSTEM FOR IPM OF PRUNE BROWN ROT (DSS-PBR) IN 2002

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The following two improvements have been made in the Decision Support System for IPM of Prune Brown Rot (DSS-PBR) in 2002:

1. For the decision supports during blossom period, low and high temperature limits have been considered and included in the system as follows. If the daily maximum temperature in the following 3 days is less than 50° °F (10° C) or the daily minimum temperature is greater than 86° F (30° C), there is no risk of blossom infection, and the user can exit and visit the system after 3 days. If not, then the user should continue to answer the simple questions to obtain the decision supports (Figure 1).
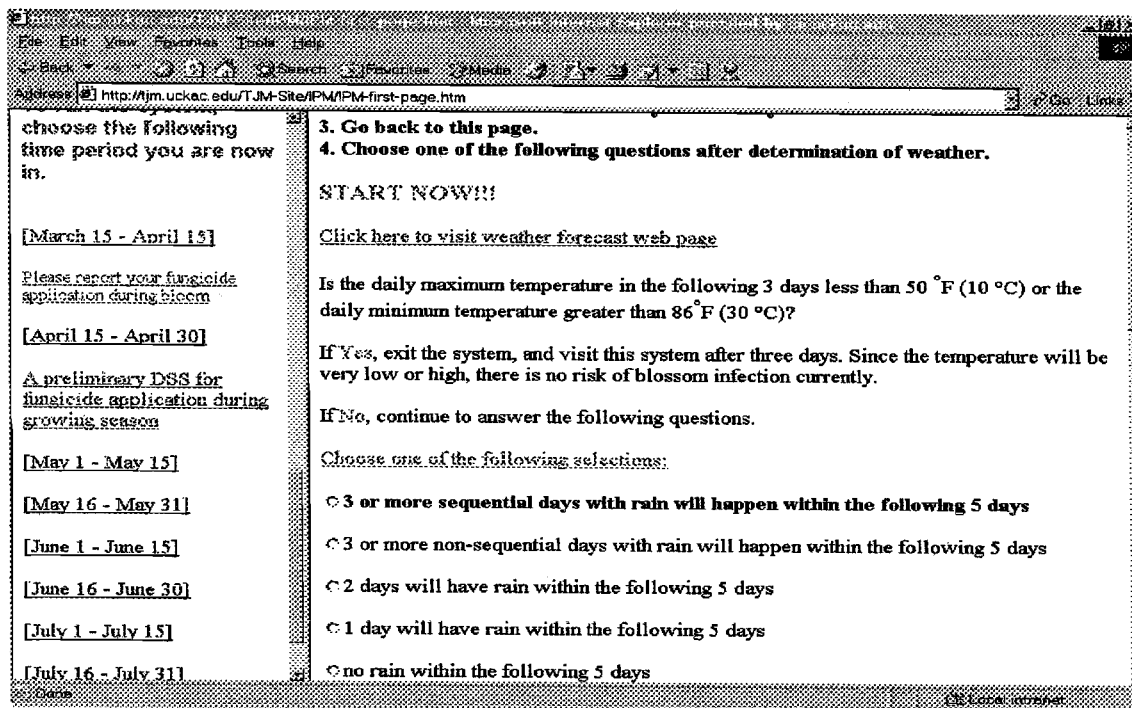

Figure 1. The low (50° F) and high (86° F) temperature limits have been included in the decision support on fungicide application to reduce risk of blossom blight.

2. We have finished a preliminary decision support model for fungicide application in mid- and late-season to reduce risk of latent infection and fruit rot. The user can click the title "A preliminary DSS for fungicide application during the growing season" (left frame in Figure 2). Before using the model (system), users needs to have information on the level of latent infection in their orchards. They or private laboratories can determine the latent infections by using the protocol of the Overnight Freezing Incubation Technique (ONFIT; http://tjm.uckac.edu/TJM-Site/onfit/ONFIT.htm). Or, simply the user can have a rough estimate of latent infection level to just get an idea whether a fungicide spray would be necessary. The information that the user needs to input in the model includes the current date and the corresponding latent infection level (Figure 3). After submission,

the decision support can be found at the bottom of the same page below the line marked "Submission Results". There are four possible recommendations regarding fungicide application: a) No need to spray; b) Wait for 1 – 2 weeks to determine the necessity of spray; c) Refer to the reference table to see the probability of historical risky weather; and d) Spray fungicide immediately (Figure 4). When the user clicks the "Click here button to check the statistics of historical weather conditions", the model will give the table showing the probabilities of low, moderate, and high risks of latent infection based on calculations from 18 years for 32 locations in California (Figure 5). Users can make a decision on fungicide application according to the possible risks in their specific location based on historical weather data.
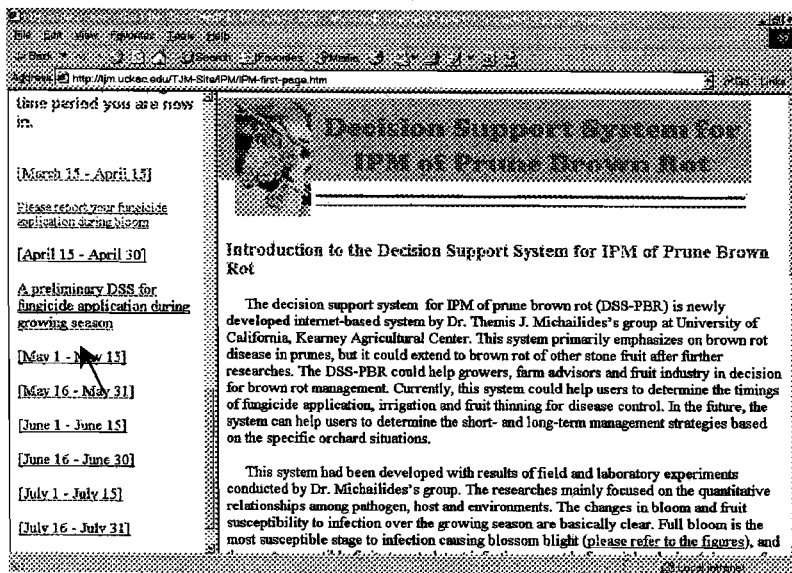

Figure 2. A new but preliminary decision support model for fungicide applications in mid- and late-season (indicated by the arrow) has been completed in 2002.
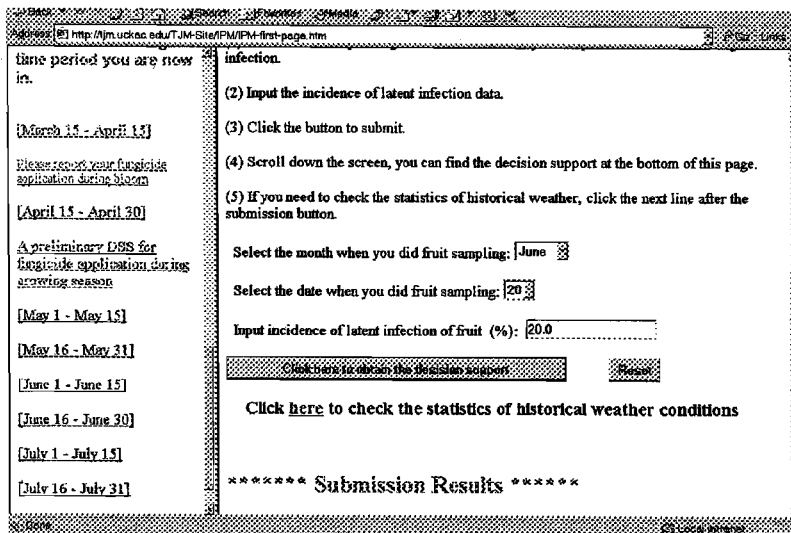

Figure 3. The user needs to input the date and the corresponding latent infection level and submit the answers to obtain a decision support on fungicide application.
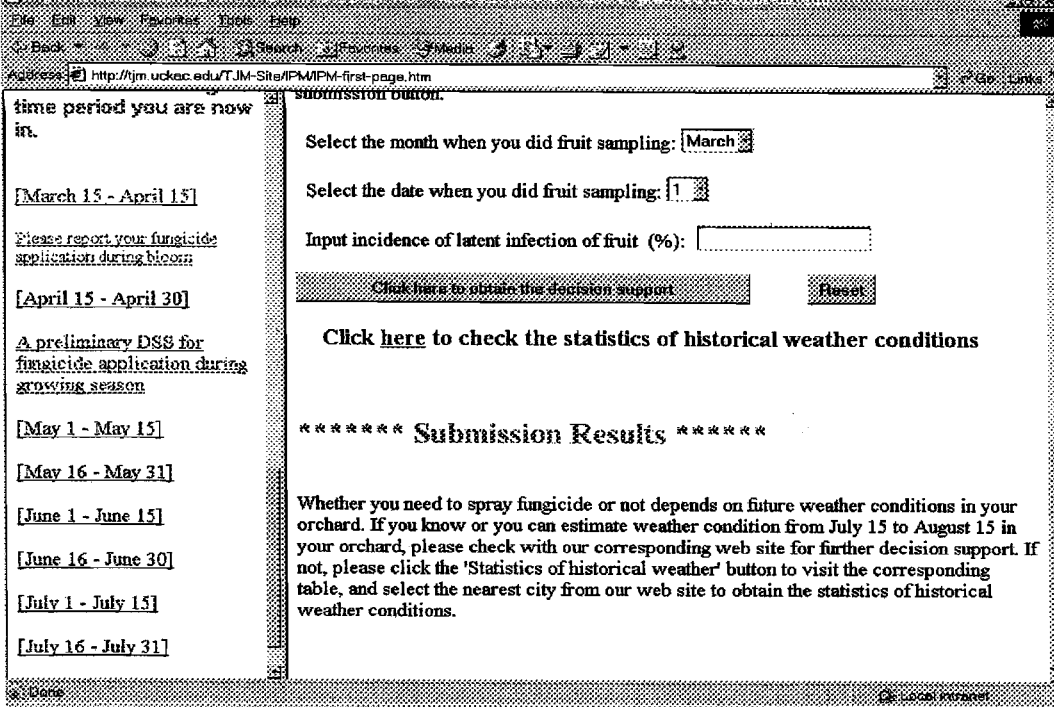
time period you are now in.

[March 15 - April 15]

Please report your fungicide application during bloom

[April 15 - April 30]

A preliminary DSS for fungicide application during growing season

[May 1 - May 15]

[May 16 - May 31]

[June 1 - June 15]

[June 16 - June 30]

[July 1 - July 15]

[July 16 - July 31]

Select the month when you did fruit sampling: March

Select the date when you did fruit sampling: 1

Input incidence of latent infection of fruit (%):

Click here to obtain the decision support   Reset

Click **here** to check the statistics of historical weather conditions

******* Submission Results ******

Whether you need to spray fungicide or not depends on future weather conditions in your orchard. If you know or you can estimate weather condition from July 15 to August 15 in your orchard, please check with our corresponding web site for further decision support. If not, please click the 'Statistics of historical weather' button to visit the corresponding table, and select the nearest city from our web site to obtain the statistics of historical weather conditions.

Figure 4. After submission, the user can scroll down to the bottom of the same page to obtain the "Submission Results."

Statistics of historical weather leading different risk of prune fruit rot for different locations in California

This table shows the percentages of total hours of humidity greater than 90% (hRH) and total hours of dew period (hDEW) from 15 July to 15 August relating to different risk level of fruit rot caused by *Monilinia fructicola* for each location in different counties in California. The historical weather data from 1983 to 2001 were collected from the California Irrigation Management Information System (CIMIS). The field experimental results were used to calculate thresholds of hRH and hDEW relating to different risk levels of fruit rot. The information of this table could be used as a reference of historical weather conditions in a specific location for decision making on fungicide application to reduce risks of prune fruit rot.

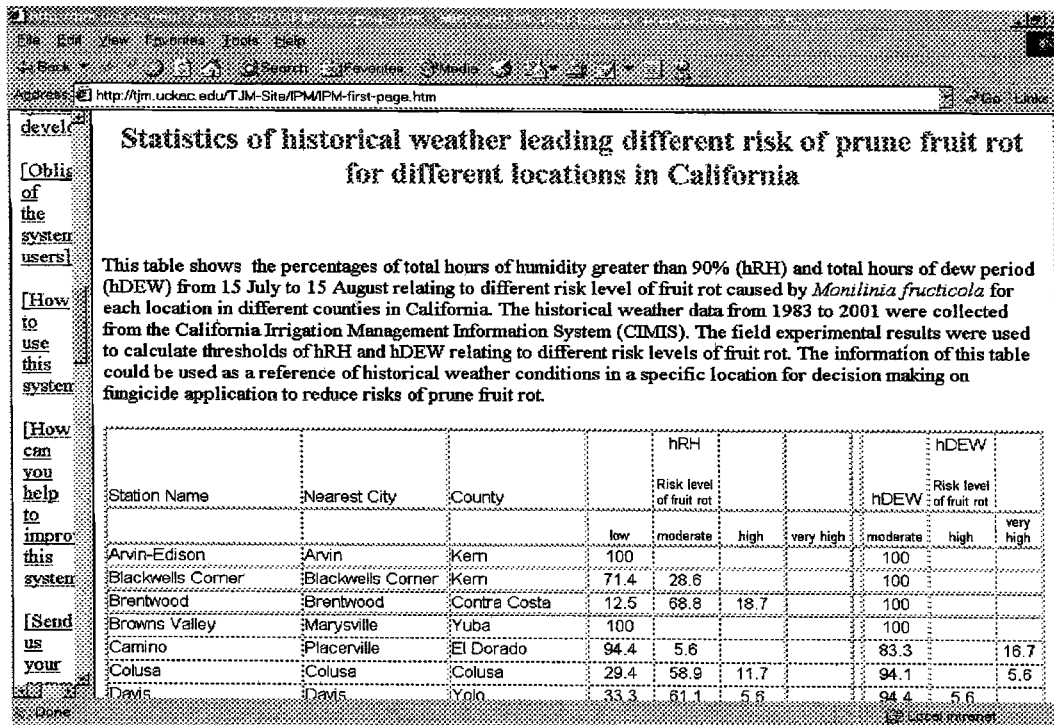| Station Name	Nearest City	County	hRH Risk level of fruit rot				hDEW	hDEW Risk level of fruit rot	
			low	moderate	high	very high	moderate	high	very high
Arvin-Edison	Arvin	Kern	100				100		
Blackwells Corner	Blackwells Corner	Kern	71.4	28.6			100		
Brentwood	Brentwood	Contra Costa	12.5	68.8	18.7		100		
Browns Valley	Marysville	Yuba	100				100		
Camino	Placerville	El Dorado	94.4	5.6			83.3		16.7
Colusa	Colusa	Colusa	29.4	58.9	11.7		94.1		5.6
Davis	Davis	Yolo	33.3	61.1	5.6		94.4	5.6	

Figure 5. Users can use the above table to determine the probability of weather conditions that could lead to low, moderate or high risks of latent infection at a specific location. The risks were calculated from historical weather data for 18 years.