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Recently we have been working on a web site to help growers minimize off target spray drift. This concerns all growers but is particularly relevant to kiwifruit growers in the Bay of Plenty. Applications of HiCane have caused many complaints to be made to the local council and the kiwifruit growers organization have adopted a proactive education based approach. Minimizing drift to off target areas involves many factors including sprayer setup, nozzle selection and weather conditions prevailing during application. The last factor has been the attention of our focus.

The free **spraydrift.com** web site is designed to allow growers to select the best time to apply sprays. Applying sprays this way avoids spray drift caused by environmental factors onto sensitive areas like housing, schools and waterways. This is done by interpreting forecasts produced by the National Weather Service from the Global Forecast System (GFS). The entire globe is covered and the forecasts are updated four times each day and are for seven days. The GFS forecasts have a resolution of 0.5 degrees. That's about 50km in New Zealand. The conditions that encourage spray drift are detailed in NZS8409:2004. All growers who have had a GrowSafe course will be familiar with this. Primarily growers should avoid applying sprays in very still or windy conditions and apply when the delta-t is between 4 and 8. Delta-t is just the drop in temperature when a probe is surrounded by a wet wick. This is like the cool you will feel on your hand when petrol is splashed on it.

First we recommend you read the Getting Started guide on **spraydrift.com**. Then register, enter the site.

Navigating The Map

Use the familiar arrows and zoom-bar on the left-hand side to pan and zoom the map. You may also "box zoom" to a specific area by holding down the Shift key and drawing a rectangle on the map. You may also use the Search link to enter an address, a city, or other landmark. It won't find everything, but it's pretty good. An example search dialog is shown in figure 1.



Figure 1 : Property search

Your selection can be saved for future use by clicking the right mouse button. Note that you can add other properties to the system. Use the page and pencil icon to edit the name of the location and the compass icon to edit where your sensitive areas are located.

An example sensitive wind direction dialog box is shown in figure 2. All you need to do is put a tick in the areas where wind direction is a concern to you. Maybe the location of urban housing or a body of water.

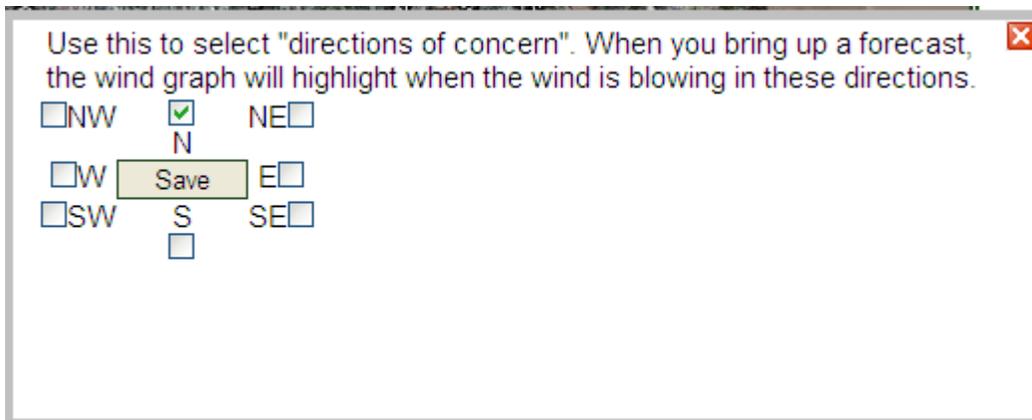


Figure 2 : Editing Sensitive wind directions

Whenever you click on a location, this dialog will show to confirm directions of concern.

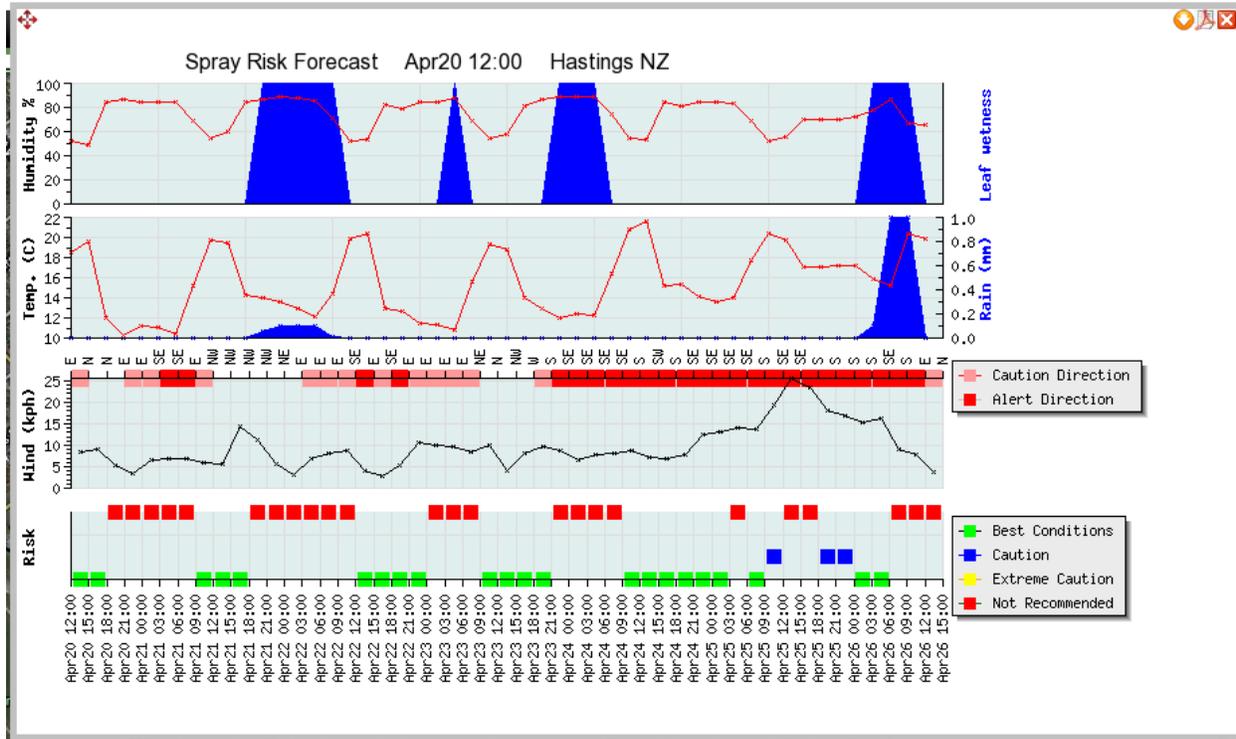


Figure 3 : Example Weather Forecast Interpretation

Figure 3 shows an example of a forecast produced by the site. The bottom graph shows the spray drift conditions. A legend to interpret the graph is shown on the right hand side. Green squares represent good conditions and bad or perhaps caused by rainfall or strong winds are denoted by a red square. Other categories of risk are shown by yellow and blue squares.

The next graph above this shows forecast wind speed and direction. Whenever the wind is heading towards your sensitive area a red square will show. In this example there are houses to the south. Whenever the wind is headed one compass bearing of 45 degrees away from this a pink square will show. Once again a legend on the right hand side is provided for interpretation. In this example whenever the wind is forecast to come from either a E or W direction, a pink square will show. By using a combination of the output from graphs 1 and 2, ideal spraying conditions away from sensitive areas can be defined. In this example a spraying window exists on April 21st. Good spraying conditions with drift headed away from sensitive areas.

The next graph above this shows forecast temperature, rainfall and the chance of rainfall. In this example a periods of light rainfall is expected on April 22nd. During this time the temperature is expected to be in the mid teens.



The very top graph shows expected humidity and leaf wetness. Leaf wetness is not a forecast variable and we have estimated this from rainfall, humidity and dew point forecasts. Using the information provided in the top two graphs, an infection event from wet weather diseases will be forecast. Apple growers for example will be concerned with apple scab early in the season while grape growers may be concerned with infection from botrytis. Urban parks maintenance people may be concerned about turf diseases. As a general rule these diseases are best controlled with preventative rather than curative actions.

Once you have decided to apply a spray, the bottom two graphs should identify the best timing to minimize drift caused by environmental conditions and the best time to avoid drift to sensitive areas. It is hoped by doing this a growers and contractors will be able to demonstrate responsible spray use.

Sometimes a hardcopy output may be required or an email sent prior to any action being taken. An Adobe Acrobat PDF file can be generated by clicking the small down arrow in the top right hand corner of the forecast screen. Either print or email this output. If printing you may like to add comments to the page prior to filing. This will allow you to demonstrate spraying operations were made with the best available information.

The site also has three case studies you can read and an faq (frequently asked questions). Feel free to pass this site on to friends. It covers the entire globe so growers overseas might find this site useful as well. Spray drift is an international issue generating huge costs for growers.

As usual if you have any questions or comments send an email to info@hortplus.com