



## Drift Risk Advisor Description

The Oklahoma Mesonet Agweather Drift Risk Advisor is a weather-based tool that identifies times of high and low spray application drift risk. It uses the National Weather Service (NWS) North American Model (NAM) forecast to identify times when it is best to avoid applications due to forecasted weather variables and/or dispersion conditions.

The Drift Risk Advisor is a guidance tool based on forecast weather data and user entered weather variables and conditions. Pesticide labels should be consulted for application limitations based on weather variables or conditions.

Spray drift risk is a combination of weather conditions, application equipment, material applied and spray adjuvant included in the spray mixture. The final judgment and responsibility of whether to make a spray application rests with the applicator and/or application supervisor.

Drift Risk Advisor weather variables include:

- Air Temperature (Fahrenheit)
- Relative Humidity (percent)
- Wind Speed Average (miles per hour)
- 1-hour Rainfall (inches per hour)
- Wind Direction

The forecast air temperature is an average for the next hour at the 1.5 meter or 5-foot level in Fahrenheit.

The forecast relative humidity percent is an average for the next hour at the 1.5 meter or 5-foot level. Relative humidity indicates the percentage of water vapor at the forecast air temperature.

The forecast wind speed is the average wind speed in miles per hour anticipated for the next hour at the 10-meter or 33-foot level. This represents the sustained wind speed. Generally, the higher the wind speed, the more likely wind gusts will exceed the sustained wind speed.

The forecast rainfall is the amount of rain forecast to fall in the previous hour in inches.

Dispersion conditions are based on the Oklahoma Mesonet Dispersion Advisor. Dispersion conditions are reported as one of six levels of vapor dispersion. These six categories are given text and number designations: Very Poor (1), Poor (2), Moderately Poor (3), Moderately Good (4), Good (5) and Excellent (6).

As a general guideline for hormonal herbicide (2,4-D) applications, dispersion conditions should be “Moderately Good”, “Good” or “Excellent” to avoid plant injury from concentrated vapor drift. When dispersion conditions are “Moderately Good” or better, concentrated vapors disperse horizontally and vertically to lower concentrations. As dispersion conditions drop into “Poor” and “Very Poor” categories the risk increases substantially that vapors will remain concentrated and may drift as an unseen cloud to injure plants sensitive to hormonal herbicides, such as grapes and tomatoes.

The Drift Risk Advisor allows users to enter “Lower Limit” and “Upper Limit” values for air temperature, relative humidity and wind speed. For 1-hour rainfall, only an “Upper Limit” is entered, while for dispersion conditions only a “Lower Limit” is entered. Users may choose to enter conditions for one or more Weather Variables.

Wind directions to be avoided are selected using an interactive pie chart divided into 16 sections. The wind



direction pie chart includes both compass direction letters and numbers. When selected, the pie slices indicating wind directions to be avoided turn red.

The second page of the Drift Risk Advisor allows the user to select a local Oklahoma Mesonet site. Mesonet site designation is used to select North American Model forecast data localized to that site. The default setting for the Drift Risk Advisor output table is 84 hours. Users may also choose output table time periods of 72, 48, 24, 12, 6 or 3 hours.

The entered Weather Variable ranges will be compared against Mesonet site localized North American Model forecast data. Weather variables left blank will not be compared to forecast data, although they will be listed in the table. The North American Model forecast is updated four times a day.

The times when Weather Variables are within the user entered Upper and Lower Limits will appear as green colored boxes in the output table. When the Weather Variable is outside the Upper and Lower Limits, the box will have a red color. Weather Variables not compared will be shown in the table as column(s) of alternating gray and white boxes. All times are for the USA Central Time Zone for Standard (CST) and Daylight Savings (CDT) time.

When all selected Weather Variables for a single hour fall within the entered Upper and Lower Limits, the "Criteria Met?" box will be colored green and have "Yes" text. When any one Weather Variable for a single hour falls outside the entered Upper and Lower Limits, the box in the "Criteria Met?" column will have a red color and "No" text.

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The Mesonet Agweather Spray Drift Risk Advisor was developed from an Oklahoma State University Division of Agricultural Sciences and Natural Resources Team Initiative grant. It was adapted from the Mesonet OK-FIRE Fire Prescription Planner. Project team members included: Albert Sutherland, Randy Taylor, Andrea Braeutigam, Allan Ware, Maggie Hoey, Stdrovia Blackburn, Rafal Jabrzemski, Jeff Bedwell, Michael Pettijohn and Gary Strickland. The DASNR TIP project was conducted during 2008 and 2009. The Drift Risk Advisor was adapted from the OK-FIRE Fire Prescription Planner developed by J.D. Carlson, Stdrovia Blackburn and Rafal Jabrzemski.

