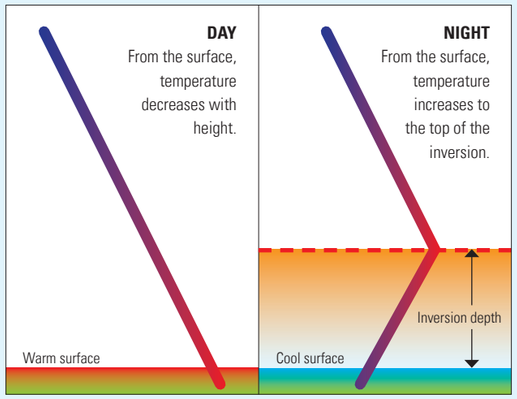
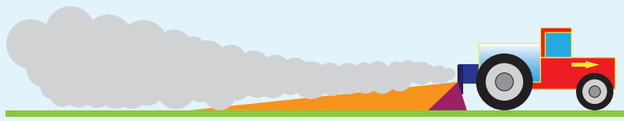
KEEP THE SPRAY ON THE WEEDS

WHAT IS AN INVERSION?



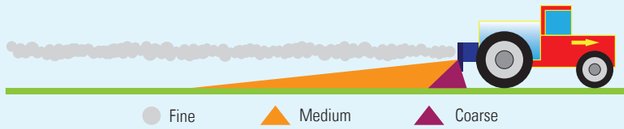
Above: Typical vertical temperature profiles for a point in time during the night and day. The day profile typically cools with height and the night profile typically warms with height to a depth which constitutes the surface temperature inversion layer. The point where the temperature stops increasing is the top of the surface temperature inversion layer.

1 NEUTRAL CONDITIONS FAVOUR PLUME DEPOSITION TO THE NEAR SURFACE



2 UNSTABLE CONDITIONS PROMOTE VERTICAL DISPERSION

3 STABLE CONDITIONS CAUSE HIGH CONCENTRATION NEAR THE SURFACE



Source: GRDC Weather Essentials for Pesticide Application Booklet, 2017; author: Graeme Tepper.

TRAINING AND ACCREDITATION

- A current chemical user accreditation certificate (AQF 3) is required by any operators applying chemicals in NSW.
- All spray contractors and staff need to be licenced by EPA or Biosecurity Queensland.

NEIGHBOUR COMMUNICATION

- It is good practice to discuss cropping intentions with neighbours prior to each season.
- Keep abreast of sensitive crops at cottonmap.com.au.

RECORD KEEPING

- Legislation requires accurate records to be made.
- Records need to be kept for 3 years in NSW and 2 years in Queensland.
- Check labels for any extra records that need to be kept in addition to state requirements.

PRODUCT CHOICE

- All products can drift.
- Different products have different volatility.
- Choose products which are fit for purpose.
- Be aware of the effects of mix partners and adjuvants on volatility and drift potential.

APPLICATION TIMING

- See reverse.
- Expect an inversion every night They commonly occur one or two hours before sunset and persist through the night until one or two hours after sunrise.

WIND SPEED

- Only apply at wind speeds between 3-15km/h (day time wind speed only).
- Check label for mandatory no spray zones.
- Preferably apply when wind is blowing away from sensitive areas or crops.
- Monitor wind direction and speed at the site of application, before, during and completion of each application.

WATER VOLUME

- Ground rigs - a minimum of 60 L/ha.
- Use higher water volumes to ensure good efficacy.

DROPLET SIZE

- Boom Sprayers - a minimum spray quality of Very Coarse is mandatory. See next column.

NOZZLE CHOICE & PRESSURE

- You must use a nozzle that produces Very Coarse (VC) spray quality.
- Between 1 Oct and 15 Apr use Extra Coarse (EC) spray quality.

BOOM HEIGHT

- No more than 0.5m above target or false target (for 110° fan angle).

APPLICATION SPEED

- Aim to eliminate boom movement.
- As most rigs are rate controlled, utilise speed to a minimum of Very Coarse spray quality. Speeds above 21 km/h reduce efficacy and increase drift potential.

DO NOT FORGET TO CLEAN AND DECONTAMINATE THE SPRAY RIG AND BOOM

24 HOUR RISK PROFILE FOR SUMMER SPRAYING

Windspeeds must be **above 4 km/h** and **less than 15-20 km/h** (refer to label) blowing away from sensitive areas

Medium spray quality: **Delta T: 2-10**

Coarse spray quality: **Delta T: 2-12**

To start spraying, the sun should be about 20 degrees above the horizon, and wind speed and direction consistent for 30-40 minutes

20°

MIDDAY

Likely to be the best conditions for spraying

Be aware of higher evaporation risk and thermal activity after midday.

Monitor plant stress.

Monitor conditions closely

Consider using larger spray quality, higher water rates and managing evaporation with suitable adjuvants (ie. Collide, Activator)

SUNRISE

Windspeed should be **above 4-5 km/h** after Sunrise to start spraying

Prepare to **STOP** all spraying if windspeeds start to drop

SUNSET

***EXTREME CAUTION REQUIRED**

High inversion risk

Dangerous air movement

Plan NOT TO SPRAY during this period

CAUTION REQUIRED

Surface Inversion onset likely.

Wind must be **above 11-12 km/h**

Often spraying into the early evening is possible in summer when air movement has continued to mix the air and prevent a surface temperature inversion forming.

Spraying can only occur if the operator can be certain that a surface temperature inversion is not present.

The safest option is not to spray during this period.

Pay very close attention to changes in wind speed and wind direction through out the evening.

Later in the evening air movement can become too unpredictable for safe spraying.

Often by 10-11 pm it has become unsafe.

MIDNIGHT

Only use XC or UC spray quality, reduce spraying speed and boom height to minimise risk of droplets remaining airborne.

ALWAYS FOLLOW LABEL INSTRUCTIONS