WSDA INTERPRETATIVE DOCUMENT

METAM SODIUM/POTASSIUM – 2010 LABEL PROVISIONS

Revision Date: April 18, 2014 (Initial Release Date: June 21, 2011)

Scope of Interpretative Document

The 2010 pesticide label instructions for the metam sodium/potassium soil fumigants requires explanation so that certified applicators and handlers use the metam fumigants as intended. The scope of this document focuses on the center pivot section, specifically the "Wind Speed" provision, to the phrase "the certified applicator" that is referenced throughout the pesticide label, to the dry connect fittings requirement, and to the phrase "entry restricted period."

Many of the new metam label risk mitigation measures are directed toward reducing the potential for bystander and handler exposure from the off-gassing of MITC, however, EPA further attends to the potential for physical drift and off-target application of the product by imposing wind restrictions and release heights during the application.

This interpretative document neither alters provisions nor replaces provisions on the Section 3 label, but merely provides supplemental information.

Any subsequent revision or interpretation to the pesticide label may or may not reflect the content of this interpretation. This interpretative document may be revised or withdrawn at any time.

Under the "Center Pivot" section, metam label instructions specify wind speed restrictions based on irrigation system configuration. The section in question is reproduced below.

> Wind Speed
>
> For sprinkler or center pivot applications: 1) not using a solid stream type nozzle, OR 2) having a release height or spray height greater than 4 feet, OR 3) having 30 lbs or greater PSI at the sprinkler head, wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 10 mph.
>
> For sprinkler or center pivot applications using: 1) a solid stream, AND 2) having release height and spray height less than 4 feet, AND 3) having 29 lbs or less PSI at the sprinkler head, wind speed at the application site must be a minimum of 2 mph at the start of the application or forecasted to reach 5 mph during the application and the maximum wind speed is 25 mph.

What Qualifies as a "Solid Stream" Application?

For the purpose of this document, a solid stream is a water column that remains generally as an uninterrupted flow until contacting the intended target. An irrigation system fitted with sprayheads or nozzles that produce a free-spinning or fast-rotating type of action (e.g., rotators, spinners) or an oscillating spray pattern (e.g., nutators, wobblers) that breaks up the water stream into droplets does not qualify as a solid stream application.

Currently, WSDA is aware of three application systems that produce the course stream necessary to qualify as a solid stream application: (1) deep-grooved, fixed deflection plates; (2) very slow rotating, concave deflector pads with low-trajectory streams; and (3) drizzle boom, SmartDrop® [1] or similar apparatus with substantially equal performance. Fixed deflection plates or slow rotating deflector pads are typically installed on the inner spans of a center pivot where water flow is insufficient with the SmartDrop®, drizzle boom, or a comparable system to sustain a uniform distribution pattern.

General policy statements and interpretative documents represent WSDA's official interpretation of statute, rule, pesticide label instructions, and agency policy, opinions derived in exercising its discretionary authority.

Additional information about this document may be obtained by calling the WSDA Pesticide Management Division's toll-free telephone number, (877) 301-4555, or by dialing direct, (360) 902-2040.

Do you need this publication in an alternative format? Call the WSDA Receptionist at (360) 902-1976 or TTY Relay (800) 833-6388.

Fixed Deflection Plates or Pads

Fixed deflection plates or pads have molded, deep grooves that break the water stream from the nozzle into multiple coarse streams. The plates or pads must be designed to direct water at or below a nozzle's discharge point. To qualify as a "solid stream" application, the plate or pad must generate coarse water streams and have no more than 24 grooves; it must also be sufficiently deep-grooved to maintain a coarse flow until contacting the intended target. Deflection plates or pads cannot be used in a stacked arrangement. Limitations as to where fixed deflection plates or pads can be placed along the irrigation span are discussed below.

Example of a deep-grooved, fixed (nonrotating) deflection plate.

Example of a very slow rotating, multi-steam low trajectory pad.

Very Slow Rotating Pads with Low-Trajectory Streams

A concave pad diffuses the water flow from the nozzle into four or fewer streams. The low-trajectory streams are 4 to 8 degrees relative to the base plate or cap of the sprayhead body. Along with the very slow rotating speed of the pad, the integrity of the multi-trajectory spray stream is maintained.

Drizzle Boom or SmartDrop® Systems

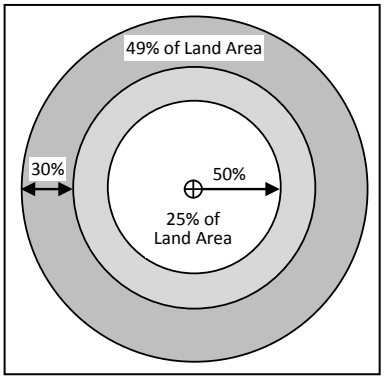
A SmartDrop® or drizzle boom as shown below is a rigid or semi-flexible boom suspended from an irrigation span (lateral). The booms are connected to the drop tube or rigid pipe from the gooseneck by means of an extension that is attached to the threaded bottom of a pressure regulator, to a hose barb adaptor, or to a pipe thread or hose thread connection. Boom systems are usually suspended two to four feet above the soil surface. Throughout this document, drizzle boom will be used as an inclusive reference, including SmartDrop®.

Combining Drizzle Booms with Fixed Deflection Plates or Pads

Water streams from fixed deflection plates or pads are smaller in diameter in comparison to streams emitted from a drizzle boom system. For that reason, drizzle boom applications are much less prone to wind distortion, droplet movement, and evaporation. However, it may be impractical to retrofit an entire center pivot with a drizzle boom system due to the problem inherent with the very low application rate from nozzles on spans near to the pivot point. Deflection plates or pads may be used to accommodate the low flow rate while maintaining distribution uniformity. Deflection plates or pads are not advisable on the outer spans due to the potential for off-target movement. The solution to these shortcomings is to combine the two systems, retrofitting deflection plates on the inner spans and fitting the outer spans with a drizzle boom system. If used, the swing or corner span must be fitted with a drizzle boom system, or the sprayheads or nozzles must be deactivated.

A drizzle boom-type system fitted to the drop tubes of a center pivot.

Approximately 49 percent of the land area lies within the outer 30 percent of a circle's radius (refer to the following diagram). To illustrate this fact, on a center pivot with seven equal span lengths of 180 feet – assuming no overhang on the outermost lateral tower, the two outermost spans will comprise 49 percent of the land area; the three outermost spans will encompass approximately 67 percent.



Approximately 49% of the land area under a center pivot lies within the outer 30% of its radius.

To qualify for a solid stream application system that allows for wind speeds up to 25 mph, the entire pivot span (including the swing or corner span) must be retrofitted with either (1) a drizzle boom-type system or (2) fixed deflection plates used in combination with a drizzle boom-type system. In determining the number of spans that must be retrofitted with a drizzle boom system, the land area of the treatment site, not the linear length of the pivot span, shall be the decisive factor.

The highly variable land area that is traversed by a swing or corner span throughout a pivot's rotation negates its practical consideration. Accordingly, only the area under the pivot lateral towers and overhang will be considered. At least 49 percent of the land area at the outer perimeter of a center pivot (excluding the area under swing or corner spans) must be retrofitted to a drizzle boom system. Therefore, at least the outer two spans, including the overhang on the outermost lateral tower, must be retrofitted with a drizzle boom system.

Each center pivot system is characteristically unique and, therefore, a specified combination of these two solid stream systems is not universally appropriate for all center pivot systems. Nevertheless, any combination of the two systems must provide a uniform application and must keep the product on the treatment site. It is the applicator's responsibility to ensure that the system complies with all label restrictions concerning off-target application and drift. Technical assistance is available through WSDA's Moses Lake office by calling (509) 766-2574.

Other Irrigation System Requirements

To qualify for the wind speed allowance when using a drizzle boom system in combination with fixed deflection plates or pads, the pressure must be less than 30 psi at the nozzle discharge and the release height must be four feet or less. It may be necessary to attach tubes or hoses onto the drop extensions to achieve the appropriate height. It is anticipated that pesticide labels will require a buffer zone in 2012. The applicator is directed to the buffer zone table on the pesticide label for buffer zone distances appropriate to the irrigation system configuration being used.

What is Meant by the Label Requirement "All Applications must Remain Within the Target Area?"

What is understood to be an off-target application is clearly articulated in the label instruction "All applications must remain within the target field boundaries." Improper applications may result in off-target movement with the potential for property damage and human exposure. Disabling mechanisms for water-emitting devices, such as on the outermost spans, must be appropriately adjusted and properly maintained to comply with label instructions concerning off-target applications and drift precautions.

What is the Monitoring Frequency for System Performance during a Chemigation Application?

Monitoring must start from the instant that an application begins until the application is complete. Although the Washington State chemigation rule requires that an application must be physically evaluated every four hours, the 2010 metam label requires a two-hour interval. With reference to the presence of sensitive areas, the Washington State chemigation rule requires that constant monitoring must occur when such sites are susceptible to physical and vapor drift, surface runoff, and overspray. The applicator is responsible to ensure that an application is performed in a safe and judicious manner.

How is "Maximum Wind Speed" Determined?

A wind speed reading is not necessarily an instantaneous event. It can also be a mean reading during a predetermined interval of time. Accordingly, a monitoring event that experiences wind gusts or variable wind speeds can be averaged and reported as a mean wind speed reading. A three-minute mean wind speed reading is suggested. It is recommended that the criteria used to determine mean wind speed be recorded on the pesticide application recordkeeping form. For irrigation systems (1) not using a solid stream system, (2) with an average water release height more than 4 feet, or (3) with 30 psi or more at the nozzle, mean wind readings cannot exceed 10 mph. For irrigation systems that conform to the solid stream criteria, a mean wind speed of 25 mph cannot be exceeded.

Suggested WSDA Guidance on Determining and Recording Mean Wind Speed.

- Measure the wind speed during a three-minute time interval. This is the "Mean Wind Speed."
- Should the wind speed be more erratic or gusts are approaching the critical cut off speeds of 10 mph or 25 mph (depending on device configuration), additional wind readings are advised in order to substantiate and, if requested, to verify the prevailing wind pattern during the application.
- If applications are near sensitive areas (as defined in WAC 16-202-1002[44]) or sensitive crops and if wind speeds become elevated (even before approaching the cutoff restrictions of 10 mph or 25 mph), constant monitoring at the sensitive location(s) must occur and preparations to discontinue the application must be initiated before off-target movement occurs.
- If a sensitive area or a difficult to evacuate site (a requirement on the 2011 label) is adjacent to the treatment site during a period when wind speeds approach the cutoff level, a certified applicator or someone under his or her direct supervision must be present at the treatment site perimeter, positioned between the application site and the site of concern, to monitor the application and must be prepared to discontinue the application or to initiate the emergency response plan should it become necessary.

What is Meant by "the Certified Applicator?"

Throughout the label, reference is made to "the certificated applicator." When used, it is understood that reference is actually being made to the applicator-in-charge, that is, the specific person who signed and who is responsible for the content of the Fumigation Management Plan (FMP) and of the "Post-Application Summary." This individual is ultimately responsible for the soil fumigant application. However, in the course of a fumigant application, a chemigation operation may involve several certified applicators. Thus, it is the opinion of the Washington State Department of Agriculture that "the certified applicator" as referenced on the soil fumigation label is intended to mean "the applicator-in-charge."

> The "applicator-in-charge" may delegate responsibilities to other individuals if the delegation is recorded in the FMP and the person to whom the responsibility is delegated adheres to label requirements that include, but not limited to, licensing and training.

However, only the certificated applicator-in-charge can perform certain duties. These duties include:

- Verifying that the content of the Fumigation Management Plan (FMP) is correct, and then signing it.
- Complete a post-fumigation application summary that describes any deviations from the FMP that have occurred, measurements taken to comply with good agricultural practices (GAPs), and any complaints or fumigant-related incidents that have been reported.

Is "Center Pivot" Inclusive of Linear (Lateral) Move Irrigation Systems?

Yes. Although linear move is not specifically referred to on the pesticide label, these irrigation systems are deemed to be operationally comparable to center pivots. As such, label instructions apply equally to center pivot and linear systems.

Consistent sprayhead or nozzle sizing and spacing along a linear's span negates the need to correlate boom discharge volume (size and number of holes) with varying sprayhead flow rates, as must be done with center pivots. In this regard, retrofitting a linear move with a solid stream application system (i.e., SmartDrop® or drizzle boom) is less complex and poses less of a chance for installation error.

Where in the Delivery Channel are Dry Disconnects Required?

The dry connect fittings reference in the "Application and Equipment Considerations" sections of the 2010 metam label (reproduced below) applies to the in-field transfer of metam to a ground rig apparatus (e.g., shank, spray blade, or rotary tiller). If metam is transferred from a truck or from an in-field storage tank to a tank or tanks on a ground rig apparatus, dry disconnects "must be installed on all tanks and transfer hoses." (Refer to the highlighted bulleted item below.) Furthermore, if a bulk load is hauled directly from a registrant's bulk facility or from a dealer's outlet and transferred into a tank or tanks on a ground rig apparatus, this provision will apply as well. This provision does not apply when transferring product from a truck to an in-field storage tank.

Application and Equipment Considerations

- Do not apply or allow fumigant to drain or drip onto the soil surface. Injectors must be placed below the soil surface before product flow begins. For each injection line either have a check valve located as close as possible to the final injection point, or drain/purge the line of any remaining fumigant prior to lifting injection shanks from the ground. Do not lift injection shanks from the soil until the shut-off valve has been closed and the fumigant has been depressurized (passively drained) or purged (actively forced out via air compressor) from the system.
- Application equipment must be in good working order.
- All tanks, hoses, fittings, valves and connections must be serviceable, tightened, sealed and not leaking.
- Dry connect fittings (closed transfer system) must be installed on all tanks and transfer hoses.
- Sight gauges and pressure gauges must be working.
- Nozzles and metering devices must be the correct size and sealed and unobstructed.
- Use only tanks, hoses and fittings designed to withstand the pressure of the system and resistant to metam.

What is the difference between "REI (Restricted Entry Interval)" and "Entry-Restricted Period?"

With previous soil fumigant labels, a provision of the *Worker Protection Standard (WPS)* for agricultural pesticides permitted workers – given that special protection was provided – to enter treated areas where contact with treated surfaces might occur, but only in a few very limited work situations. Known as early-entry work situations, worker contact with treated surfaces was allowed in only four work situations: short-term tasks, limited-contact tasks, emergency tasks, and EPA-approved specific tasks.

Beginning with the 2010 soil fumigant labels, early-entry worker tasks are no longer permitted. To differentiate between the 2010 soil fumigant labels and other pesticide labels concerning this disallowance, the phrase "Entry-Restricted Period" is referenced on soil fumigant labels.

Although soil fumigant labels will refer to an entry-restricted period instead of a REI (Restricted Entry Interval), WPS requirements will still be triggered by a pesticide application.[2] For soil fumigation, the 30-day period will be tied to the end of the application rather than to the end of the REI period. Accordingly, entry (including early entry that would otherwise be permitted under the Worker Protection Standard) by any person – other than a correctly trained and PPE-equipped handler who is performing a handling task listed on the labeling – is PROHIBITED from the start of the application until:

- 5 days (120 hours) after the application is complete for untarped applications, or
- 5 days (120 hours) after application is complete if tarps are not perforated and removed for at least 14 days following application, or
- 48 hours after tarp perforation is complete if not removed for at least 14 days following application, or
- Tarp removal is completed if tarps are both perforated and removed less than 14 days after application.

Refer to the "ENTRY-RESTRICTED PERIOD" section of a soil fumigant label for additional information.

[1] SmartDrop® is an AMVAC patented device. Construction of a SmartDrop® device must take place with AMVAC approval or under AMVAC oversight.

[2] Worker employers or handler employers are still responsible for the training of employees as required by the WPS. The five basic pesticide safety training requirements include (1) information at a central location, (2) pesticide safety training, (3) decontamination supplies, (4) employer information exchange, and (5) emergency assistance.