



MOORING

Nonionic Spreader Sticker Adjuvant

PRODUCT INFORMATION BULLETIN

MOORING is a specialized multi-function water dispersible nonionic spreader sticker surfactant that is designed and formulated to be used by professionals to improve the performance functionality, efficacy and efficiency of pesticide and/or foliar feed micronutrient spray applications. **MOORING's** formulation consists of a blend of two highly compatible nonionic components that when added to agricultural spray solutions, enhances the distribution and surface affinity the pesticide product to the leaf surface.

Wetter/Spreader Component

For a pesticide to perform its function properly, a spray droplet must be able to wet the foliage and spread out evenly over a leaf.

When water comes in contact with hydrophobic (non-polar) surfaces such as the waxy cuticle covering leaf surfaces, the water molecules on the air and water repellent surface boundaries will rotate and move inward – away from the non-polar interfaces and towards interior water molecules. This inward movement by boundary water molecules increases surface tension and causes water to “bead,” preventing uniform coverage and retention of applied products.

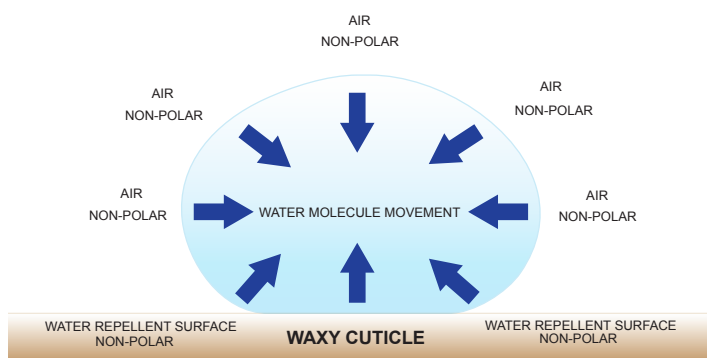


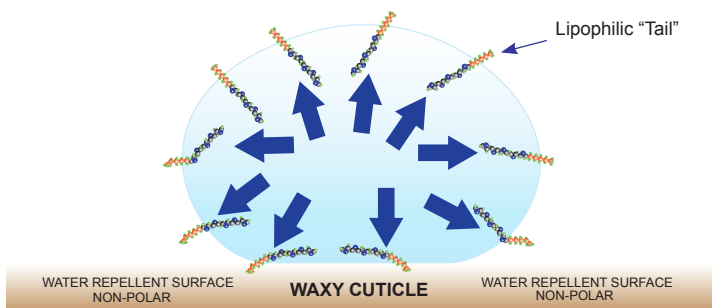
Illustration showing inward movement of boundary water molecules (cohesion) as the applied water droplet comes in contact with nonpolar waxy surface of cuticle -- resulting in increased surface tension that causes water to “bead.”

The primary purpose of the wetter/spreader surfactant component in the **MOORING** formulation is to reduce and stabilize the surface tension of the spray solution to allow the spray to establish a broader footprint (flatter profile) of contact between the spray droplets and the nonpolar waxy cuticle surface of the plant surface.

This spreads the applied pesticide over a larger area of the leaf surface and improves uniformity, thereby increasing the pest's exposure to the applied pesticides.

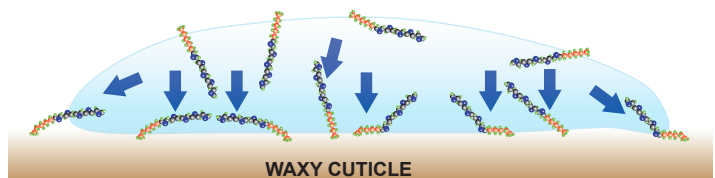
Reducing surface tension of water drops is very molecule dependent. The **MOORING** surfactant component makes a significant contribution to the reduction of spray drop surface tension because of the large size of its surfactant molecule.

In water containing the **MOORING** spreader surfactant, the large lipophilic “tail” ends of the surfactant molecules have a tendency to be pushed outward, towards the air/water interface. This begins to reduce the surface tension of the water.



Water molecules “pushing” tails of surfactant outward resulting in reduction of surface tension -- the precursor to “flattening” and spreading of the water droplet.

Once the water droplets reach the leaf surface, these “tails” attach to the hydrophobic waxy cuticle surface (adhesion) resulting in a “pulling” and “flattening” of the water droplets that improves spreading and coverage of the finished spray.



As Lipophilic tails of the **MOORING** spreader surfactant attach to water repellent cuticle surface, they “pull” the spray drop into a flatter configuration that spreads the drop over a larger surface area. This increases the applied product's footprint and provides a strong platform for increased performance.



Multi-functional Sticker Component

The MOORING spray adjuvant composition also contains a multi-functional surfactant sticker component that adds a number of performance qualities that result in improved stability, uniformity, consistency and effectiveness of applied pesticides. MOORING's sticker agent actually synergizes its spreader surfactant formulation partner as it enhances essential spray adjuvant functions.

Improved Spreading. Acting as a dispersion agent and emulsifier, the MOORING multi-functional sticker component enhances the stability, uniformity and consistency of the finished pesticide spray. This contributes to improved efficacy and efficiency of applied products.

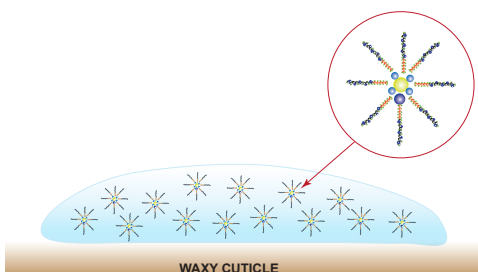
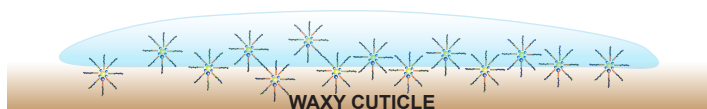


Illustration of emulsifier and dispersant properties of MOORING's multi-functional sticker component distributing a fungicide spray product (*copper sulfate emulsion shown in inset*) in a manner that promotes uniformity and consistency within the spray droplet.

Improved Adhesion. MOORING is a very unique sticker agent. It belongs within what is described as a lotion (emollient) class of sticker components. Sticker components are characterized in this way because of their ability to move and retain applied product within the upper regions of the waxy cuticle of plant surfaces – much like lotions or emollients that work their way into the skin as they are applied.

By anchoring product in the waxy cuticle polymer matrix, MOORING reduces the tendency for the dried deposit to be washed off of plant surfaces by rain or heavy dews and prolongs the effective life of the product.



Graphic of MOORING's sticker agent solubilizing the hydrophobic waxy cuticle interface of leaf surfaces and performing as a coupling agent that enables a fungicide (copper sulfate) to embed itself within the upper regions of the cuticle wax polymer structure. Fungicides and other pesticides benefit enormously from the MOORING spreader sticker formulation.

Product Features

- Water dispersible
- Compatible in spray solutions with most commercial plant protection products and foliar feed micronutrients
- Excellent surface tension reduction and dispersion characteristics that result in increased coverage and uniformity of product placement on plant surfaces
- Uses leading edge "lotion" technology that anchors product within upper region of leaf cuticle, increasing efficacy and efficiency of applied products and prevents run off and loss from rainfall or irrigation events
- Leaves no sticky residues on spray equipment
- Minimize evaporation from the plant leaf surface
- Lengthens the life of foliar-applied insecticides and fungicides.

Isn't it time for you to consider the use of MOORING spreader sticker in your spray program protocol?

USE DIRECTIONS

For use with products registered for Agriculture, Forestry Parks, Recreational Areas, Turf and Rights -Of -Way

MOORING can be applied by ground or aerial spray equipment in concentrate or dilute sprays.

For Ground Spray Applications use ½ to 1 pint per 100 gallons of water total spray solution per acre.

Air Applications For best results use 1 to 3 ounces of MOORING per 1 to 5 gallons of water per acre. For general applications use 1 to 2 pints per 100 gallons of spray solution

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