

**Adjuvant
Product Guide**



Loveland
AGRI PRODUCTS

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Loveland Agri Products is a subsidiary of Nutrien Ag Solutions specialising in innovation and technology within adjuvants, crop protection and plant nutrition products. This product guide focuses on Adjuvants, a targeted portfolio of brands that cover a variety of product types with a primary focus to improve pesticide and plant nutrition performance.

Our products are developed and produced using extensive research, development and manufacturing resources both locally and across the globe, delivering a quality product range that is led by agronomic benefit.

What is Leci-Tech® ?

Lecithin is a natural-based product derived from soybean seeds and is the workhorse of the Leci-Tech product line. Loveland Products has worked with lecithin for over 35 years and has developed numerous applications that provide benefits above any current technology.

LECI-TECH is a unique technology that assists overall spray performance by providing an improved adjuvant system.

Key PERFORMANCE factors.

To the Plant

Drift Reduction with Performance Size Droplets

One of the many unique features of Leci-Tech is its ability to reduce drift. Over the years, Leci-Tech has consistently been able to show a significant reduction of driftable fines (under 50um) while also decreasing extra large droplets (over 500um), which are susceptible to shattering, bouncing, & ineffective droplet retention resulting in highly variable & ineffective performance. Most importantly, Leci-Tech increases the percent of ideal or "performance sized" droplets.



On the Plant

Droplet Retention by Adhesion and Spreading

Coverage is one of the primary objectives with many pesticide applications. The spreading and adhesion properties of Leci-Tech are ideal for maximizing contact area and keeping droplets on the target. As the droplet makes contact with the target, the combination of creating "performance sized" droplets with the adhesion properties of Leci-Tech ensures that the droplet hits the target and stays there to provide more consistent control.



In the Plant

Increased Penetration without Cuticle Disruption

To maximize performance of both systemic and contact pesticides, it is critical to ensure penetration through the leaf cuticle. This is especially important when plants are under environmental stress. Not only does Leci-Tech increase penetration, but it does so without cuticle disruption of the leaf allowing for greater uptake. Leci-Tech allows the formation of micelles to occur at lower use rates than traditional surfactants, providing quicker uptake with no impact on crop safety.





LI 700 is a soy-oil derived, non-ionic penetrating surfactant that reduces off-target spray drift and reduces spray solution pH. LI 700 works especially well with insecticides & weak acid herbicides ie Glyphosate & 2,4-D's. LI 700's unique formulation technology and quality ingredients separate LI 700 from competing lookalike products.

Features

- Contains Leci-Tech, a unique technology that assists overall spray performance.
- Formulated for use as a Surfactant, Penetrant, Acidifying Agent & to assist with drift management.

Benefits

- TO: Drift reduction with performance-sized droplets.
- ON: Droplet retention by adhesion and spreading.
- IN: Increased leaf penetration without cuticle disruption.
- Acidification properties reducing spray solution pH, preventing pesticide degradation and maximizing performance.
- Low-foaming surfactant.

Other

Application rate: 100-500mL/ 100L. Refer to product label for specifics.

Specific Gravity (at 20°C): ~1.027.

pH: 3.6.

Colour: Dark Brown Liquid.

Compatibility: Incompatible with alkaline materials. Refer to product Safety Data Sheet.

Storage: Keep sealed in original container. Store in frostfree, dry conditions out of direct sunlight, above 5°C and below 30°C.



MSO with LECI-TECH is a methylated seed oil containing the highest quality components available. The premium emulsifiers, along with Leci-Tech technology, provide uniform mixing for excellent performance as well as drift reduction, enhanced leaf penetration and droplet adhesion. MSO with LECI-TECH is designed for use with post-emergent herbicides and has consistently demonstrated increased penetration over conventional crop oil concentrates.

Features

- Contains Leci-Tech, a unique technology that assists overall spray performance.
- Designed for use with post-emergent herbicides.

Benefits

- TO: Drift reduction with performance-sized droplets.
- ON: Droplet retention by adhesion and spreading.
- IN: Increased leaf penetration without cuticle disruption.
- Provides increased plant uptake & improved crop safety vs. standard methylated seed oil formulations.

Other

Application rate: Varies depending on herbicide and use. Refer to product label for specifics.

Specific Gravity (at 20°C): ~0.9

pH: 6.9

Colour: Yellow Liquid

Compatibility: Incompatible with strong oxidising agents. Refer to product Safety Data Sheet.

Storage: Keep sealed in original container. Store in frost-free, dry conditions out of direct sunlight, above 5°C and below 30°C



LIBERATE is an uptake enhancing surfactant blend designed for use with pesticides that recommend a non-ionic surfactant. LIBERATE works especially well with systemic chemistry assisting with drift management, is an excellent droplet adhesive & improves leaf penetration.

Features

- Contains Leci-Tech, a unique technology that assists overall spray performance.
- Designed for use with herbicides, fungicides, defoliant & plant growth regulators.

Benefits

- TO the plant: Drift reduction with performance-sized droplets.
- ON the plant: Droplet retention by adhesion and spreading.
- IN the plant: Increased leaf penetration without cuticle disruption.
- Works well with chemistries requiring a neutral pH.

Other

Application rate: 0.25-0.5L/ 100L of spray volume. Refer to product label.

Specific Gravity (at 20°C): ~0.976

pH: 6.8

Colour: Brown Liquid

Compatibility: Incompatible with strong oxidising agents. Refer to product Safety Data Sheet.

Storage: Keep sealed in original container. Store in frost-free, dry conditions out of direct sunlight, above 5°C and below 30°C



WEATHER GARD COMPLETE is a proprietary crop-based formulation containing a drift reduction agent, antifoam/defoamer, penetrant and water conditioner in one easy-to-use liquid formulation. Formulated to maximise performance of herbicide products.

Features

- Contains Leci-Tech, a unique technology that assists overall spray performance.
- Water conditioning component minimising the effects of hard water ions that interfere with herbicide performance.
- Antifoam/ defoam component stops foam from building.

Benefits

- TO the plant: Drift reduction with performance-sized droplets.
- ON the plant: Droplet retention by adhesion and spreading.
- IN the plant: Increased leaf penetration without cuticle disruption.
- All in one adjuvant that includes drift reduction, antifoam/ defoamer, penetrant and water conditioner.

Other

Application rate: 0.25-0.5L/ 100L of spray volume. Refer to product label.

Specific Gravity (at 20°C): ~1.01.

pH: 4.0.

Colour: Brown Liquid.

Compatibility: Incompatible with strong oxidising agents, strong acids and strong bases. Refer to product Safety Data Sheet.

Storage: Keep sealed in original container. Store in frost-free, dry conditions out of direct sunlight, above 5°C and below 30°C.



A non-ionic biodegradable wetting and spreading agent for use with knockdown and residual herbicides.

Benefits

- Is a spray additive suitable for pesticides for improving wetting and spray coverage.
- Mixes with all types of water, and is suitable for high and low volume spraying.
- Is 100% active non-ionic surfactant.
- Can be used with acid and alkaline sprays.

Genwet 1000 can be added to herbicide sprays requiring a non-ionic surfactant to improve efficiency. Use a higher volume spray for soil residual herbicides. When spraying waxy or hairy leafed plants which are normally hard to wet, increased activity can be obtained by increasing the rate of Genwet 1000. It is important that the leaves and stems are thoroughly wetted for foliar herbicides to work efficiently particularly when treating dense tall vegetation. Always follow the directions for use on product labels.

Other

Analysis:
1000 g/L ALKOXYLATED ALCOHOL

Specifications:
Crop suitability.....All crops + fallows
Product Timing.....As required by tank mixing partner
Pack Sizes.....1000L, 110L, 20L



An acidifying and penetrating surfactant that reduces alkaline hydrolysis of Dimethoate, assists in uptake of foliar fertilisers & assists in management of spray droplet size.

SP700 Surfactant can be used in general situations where the addition of a wetter/spreader or self-emulsifying oil is required or recommended on the agricultural chemical label. SP700 is a multi-purpose adjuvant composed of surfactants and penetrants to produce a penetrant, surfactant, acidifier for use with herbicides, insecticides, fungicides, foliar fertilizers and plant growth regulators.

SP700 also acts as an acidifier which will reduce pH in most cases to between 4 and 5 helping reduce losses due to alkaline hydrolysis and also assists with the uptake of weak acid herbicides.

Other

Analysis:

350 g/L SOYAL PHOSPHOLIPIDS

350 g/L PROPIONIC ACID

Crop suitability.....All crops + fallows

Product Timing.....As required by tank mixing partner

Pack Sizes.....1000L, 110L, 20L

Storage: Keep sealed in original container. Store in frost-free, dry conditions out of direct sunlight, above 5°C and below 30°C



A highly effective surfactant for use with insecticides, miticides, fungicides, herbicides, plant growth regulators, nutritionals, knockdown and residual herbicides requiring a wetting and spreading agent.

Nutriwet contains non-ionic and anionic surfactants. Nutriwet enhances physical and chemical properties of the spray solution and assists in overcoming water repellency of the leaf surface.

A spray adjuvant added to some pesticide or pesticide tank mixes may cause some phytotoxicity to susceptible crops and plants. Care should be taken to ensure low rates (< 200 mL/100 L) and high dilutions are used with sensitive crops.

Always follow the directions for use on product labels.

Other

Analysis:

190.8 g/L ANIONIC SURFACTANTS

81.5 g/L ALCOHOL ETHOXYLATE

Specifications:

Crop suitability.....some horticultural crops. Check label.

Product Timing.....As required by tank mixing partner

Pack Size.....10L



A combination of refined mineral oil with a high concentration of non-ionic surfactants to improve the spreading and wetting of herbicides, insecticides and defoliants on plant surfaces as specified in the directions for use.

Adopt improves spray results by;

- increasing wetting and spreading of spray droplets
- increasing penetration through waxy cuticles
- reducing spray droplet evaporation rates

Adopt is suitable for use with a range of products where mineral oil based adjuvants is specified on their label. Always follow the directions for use on product labels.

Other

Analysis:

582 g/L PARAFFINIC OIL

228 g/L ALKOXYLATED ALCOHOL NON-IONIC SURFACTANTS

Specifications:

Crop suitability.....All crops + fallows

Product Timing.....As required by tank mixing partner

Pack Sizes.....1000L, 110L, 20L



Hyper Spray Adjuvant is a blend of esterified vegetable oil and non-ionic surfactants that is suitable for use as a spray adjuvant with a range of agricultural chemicals, including herbicides, insecticides, fungicides, defoliants and desiccants where oil based adjuvants are specified on the label.

Benefits

- Increasing penetration through waxy cuticles
- Increasing wetting and spreading of spray droplets
- Reducing spray droplet evaporation rates

Other

Analysis:

700 g/L ETHYL and METHYL ESTERS of VEGETABLE OIL
116 g/L Non-ionic Surfactants

Specifications:

Crop suitability.....All crops + fallows

Product Timing.....As required by tank mixing partner

Pack Sizes.....1000L, 110L, 20L

Storage: Keep sealed in original container. Store in frost-free, dry conditions out of direct sunlight, above 5°C and below 30°C

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**SONIC
PENETRANT
SURFACTANT**

Sonic Penetrant is an organosilicone based surfactant that is a highly effective wetter/spreader/penetrant.

A non-ionic surfactant for use with Glyphosate and certain Brushweed Herbicides to improve coverage, penetration and uptake on brush, woody weeds and ryegrass. Also for use with fungicides, insecticides, miticides and foliar micronutrients as per the directions for use table.

Always follow the directions for use on product labels.

Other

Analysis:

1020 g/L POLYETHER MODIFIED POLYSILOXANE

Specifications:

Crop suitability.....tough to kill brush weed spray applications

Product Timing.....As required by tank mixing partner

Pack Sizes.....20L, 5L

Storage: Keep sealed in original container. Store in frost-free, dry conditions out of direct sunlight, above 5°C and below 30°C



| Water Hardness | mL of Choice Weather Master® to add per 100L of spray solution |
|----------------|--|
| Up to 300 ppm | 250mL |
| 400 ppm | 375mL |
| 500 ppm | 500mL |

Rates

Apply 250-500mL of Choice Weather Master per 100L of water (based on water hardness)

Fill spray tank $\frac{1}{2}$ full of water and begin agitation

Add desired rate of Choice Weather Master to water before adding pesticides

Higher mineral content in water requires higher rates of Choice Weather Master

Other

Application rate: 250-750mL/ 100L water. Refer to product label.

Specific Gravity (at 20°C): ~1.18

pH: 7 - 9.5

Colour: Yellow to Brown Liquid

Compatibility: Compatible with all formulations of glyphosate, including newer K-salts. Incompatible with strong oxidising agents, strong acids and bases. Refer to product Safety Data Sheet.

Storage: Keep sealed in original container. Store in frost-free, dry conditions out of direct sunlight, above 5°C and below 30°C



WATERMAXX 2 helps growers use water more efficiently and maintain crop productivity by improving the way water moves through soils.

Key Benefits

- Infiltration: Improves infiltration so that water and nutrients
- Distribution: Improves the lateral movement of water,
- Retention: Improves the availability of water and nutrients to the plant, increasing crop productivity

Other

Application rate: Varies per application method. Refer to product label for specifics.

Specific Gravity (at 20°C): ~1.0209

pH: 5.0 - 7.0

Colour: Dark Amber Liquid

Compatibility: Incompatible with strong oxidising agents, strong acids. Refer to product Safety Data Sheet.

Storage: Keep sealed in original container. Store in frost-free, dry conditions out of direct sunlight, above 5°C and below 30°C

Application Rates & Methods

| | |
|--------------------------------------|---|
| Injection through irrigation systems | Inject at 2.3L - 9.4L/ ha through any type of irrigation system (except earthen ditches) |
| Conventional sprayers | Apply at 2.3L - 9.4L/ ha. For enhanced performance, irrigation or rainfall should follow application. |
| Transplanting | Add 0.25L to 1L/ 1000L of transplant water |
| Fallow bed treatment | Apply 2.3L - 9.4L/ ha to fallow beds in advance of rainfall events to increase water infiltration and to reduce water run-off |

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SUPASOAK
SOIL WETTER



Supersoak is designed to improve crop emergence on non wetting soils and other scenarios where available moisture is marginal by improving water penetration.

Supersoak used in Broadacre (for use in minimum tilling seeding systems) is ideally applied as an in-furrow band at seeding (behind knifepoint/disc). There may be added benefit from applying an additional band to the top of the furrow (behind the press wheel).

Supersoak when applied in Turf & Horticulture will see application rates change depending on severity of the non-wetting soil. Regular applications may be required.

Always follow the directions for use on product labels.

Other

Analysis:

Contains Non-Ionic Surfactant & Natural Bio-Degradants

Specifications:

Crop suitability.....Broadacre, Turf & Horticulture.

Product Timing.....Broadacre at planting, Turf/Hort regular apps may be required.

Pack Sizes.....1000L, 20L

Storage: Keep sealed in original container. Store in frost-free, dry conditions out of direct sunlight, above 5°C and below 30°C



TOLERO™ is an innovative, highly concentrated formulation of two surfactants designed to improve early seedling emergence and vigor, particularly in non-wetting soils and/or dry seeding situations. Tolero works by attracting and retaining moisture around the seed when banded with water and/or UAN at the time of sowing. Tolero slows the effect of water's natural vertical movement while promoting lateral spread within the furrow and holds plant-available water over time.

Features:

- Unique concentrated formulation with two soil surfactants.
- Improved soil moisture in the seed furrow.
- Low use rates for convenience & return on investment.

Benefits:

- Improves seedling emergence & vigor in non-wetting soils.
- Improved uptake and performance of nutrients and soil-applied inputs including the activation of soil applied herbicides.
- Reduces water stress to improve plant health, reduced runoff and leaching.

Other:

Application rates: general rate of 2.5 L/ha, rates may be adjusted to meet the needs of the crop, based on soil type and conditions.

Timing: On annual crops, apply TOLERO alone or in combination with nutrients injected at planting.

Packaging: 2 X 10 litre drums per box

Product compatibility: Tolero has been tested for physical compatibility with liquid UAN and some banded fungicides. Physical compatibility should always be confirmed with a jar test prior to mixing larger volumes. Successful compatibility tests have been carried out with the following products.

1. Ezyflow Zinc
2. Flutriafol 500 SC
3. Azoxystrobin + Metalaxyl-M
4. Chlorpyrifos 500 EC
5. Bifenthrin 250 EC
6. Liquid UAN



UNFOAMER anti-foaming/de-foaming agent is designed to effectively control foam in water, oil, fertiliser and pesticide spray mixtures. UNFOAMER can reduce mixing time by facilitating faster and more accurate filling. Foam can affect calibration and metering of spray mixtures. UNFOAMER will help reduce waste and exposure to pesticides contained in foam running over the top of the tank.

Benefits

- Contains a premium, high concentration, dual-component antifoam/defoamer chemistry to provide effective knockdown of foam following tank fill.
- Aids in preventing foam when added to the tank first, as additional tank additives and chemistries may inherently cause foam upon mixing.

Technology

- Antifoam + Unfoamer in one

Other

Analysis:

Crop Suitability.....All Crops

Product Timing.....Used in spray tank

Pack Sizes.....946 ml

Storage: Keep sealed in original container. Store in frost-free, dry conditions out of direct sunlight, above 5°C and below 30°C

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