

# agrimax™ 3H ULN

## rainfast multipurpose adjuvant

### triple action for hydrophobic agriculture actives

#### description

Spread, stick and penetrate with a single product. Agrimax™ 3H ULN rainfast multipurpose adjuvant is a breakthrough technology for improving the performance of hydrophobic fungicides in crop protection applications. Agrimax™ 3H ULN rainfast multipurpose adjuvant features a synergistic combination of water-insoluble polymers and other chemistries that, together, provide the functionality of spreaders, stickers and penetrants in a single easy-to-use product.

#### key features and benefits

- rainfastness
- spread, stick and penetrate with a single product
- superior desiccation
- significantly lower foliage disease
- higher yields
- excellent fungicide deposition
- good spread across leaves
- lower environmental impact
- longer effective shelf life for dispersions
- problem-free spraying with no blocked nozzles or pumps

#### advanced technology for improved yields

Conventional adjuvant technologies employ simple surfactants or water-soluble polymers to enhance spreading and sticking performance. The Agrimax™ 3H ULN spray tank adjuvancy system is based on water-insoluble polymers that resist wash-off from either rain or irrigation water. When diluted in the spray tank, Agrimax™ 3H ULN rainfast multipurpose adjuvant helps form a stable dispersion that delivers performance advantages over conventional adjuvant formulations. The components of the Agrimax™ 3H ULN system work synergistically to promote wetting, spreading and penetration. Use of as little as 0.1% Agrimax™ 3H ULN rainfast multipurpose adjuvant can increase the efficacy of hydrophobic fungicides, reducing foliage disease by over 20% and improving marketable yields by more than 7.5% in row crops compared to the same formula without Agrimax™ 3H ULN rainfast multipurpose adjuvant.

hydrophobic fungicides tested with Agrimax™ 3H ULN rainfast multipurpose adjuvant	
chlorthalonil	oxydixal
cymoxamil	pencozeb
dymethomorph	propioneb
ferimzone	pyraclostrobin
fluazinam	stroburilin
flutriafol	tebuconazole
futhalide	triazole
mancozeb	spiroxamine

## Agrimax™ 3H ULN

### rainfast multipurpose adjuvant

- better performance
- lower costs of production
- higher yields

## fungicides and Agrimax™ 3H ULN

Agrimax™ 3H ULN rainfast multipurpose adjuvant has been shown in numerous studies to enhance the performance of major fungicides used around the world. Below are just a few of these results.

crop	fungicide	addition rate (active)	addition rate (adjuvant) v/v	result
winter wheat	cypoconazole	80g/20L	0.15%	mildew pustules reduced 81% brown rust reduced 79% yield increased 3.5%
winter wheat	tebucanazole	100g/20L	0.15%	mildew pustules reduced 31% brown rust reduced 41% yield increased 1%
winter wheat	flutriafol	50g/20L	0.15%	septoria infection reduced 27% mildew pustules reduced 23%
potatoes	flutriafol	0.3L/ha	0.16%	>50% decrease in foliage blight increased yield by 7.5%
soybeans	tebucanazole	5.3fl oz/ac	0.25%	42% reduction in leaf spotting

## Agrimax™ 3H ULN and fruit crops

Agrimax™ 3H ULN rainfast multipurpose adjuvant is an ideal adjuvant technology for use in the application of fungicides to fruit crops and has been proven effective in sigatoka disease control programs. It offers low fruit phytotoxicity when combined with many systemic and contact fungicides. It also shows excellent stability and low sedimentation. The rainfastness of Agrimax™ 3H ULN-based formulations is a particularly important feature in fruit crop-growing environments. This allows enhanced protection from disease damage in IPM programs. In bananas it has provided for the lower use of spray oil that saves costs and dramatically reduces the environmental impact of crop spraying.

## lower costs in use

Crop spray oil is commonly used as an aerial spray tank mix ingredient to enhance fungicide performance. Figure 1 shows a usage comparison for providing protection against black sigatoka on bananas. Based on similar performance, spray mixtures using Agrimax™ 3H ULN rainfast multipurpose adjuvant were less costly than conventional applications with crop oil. Additional benefits include larger spray areas per plane load, fewer number of sprays required during a growing season and a dramatically reduced environmental impact.

Figure 1: Rate comparison: Agrimax™ 3H ULN rainfast multipurpose adjuvant versus spray oils in bananas (Based on 20 liter aerial spray tank mix per hectare)

Agrimax™ 3H ULN		banana oil
0.5 L/hm	quantity per hectare	4-9L/hm

Through lower use levels with Agrimax™ 3H ULN rainfast multipurpose adjuvant, additional cost savings in energy, logistical costs required and number of applications can be seen.

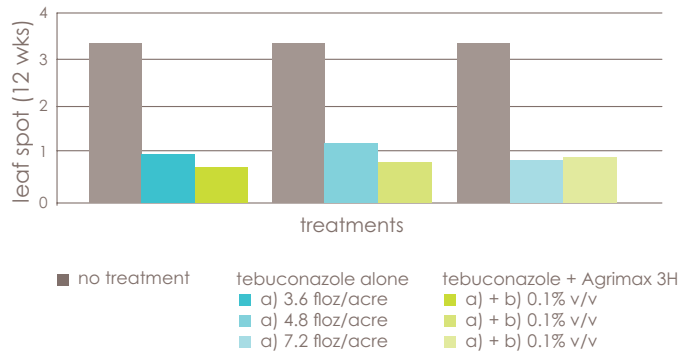
## Agrimax™ 3H ULN rainfast multipurpose adjuvant and row crops

Agrimax™ 3H ULN rainfast multipurpose adjuvant is an effective adjuvant in row crops such as soybeans, potatoes and peanuts, demonstrating stability and low sedimentation with both systemic and contact fungicides. Trials have shown it to be highly effective in control programs for foliar diseases. For soybeans, Agrimax™ 3H ULN rainfast multipurpose adjuvant has shown excellent results in control programs against Asian Soybean Rust.

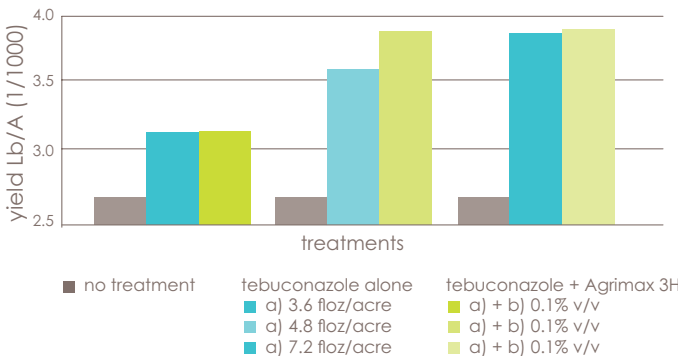
## Agrimax™ 3H ULN and peanuts

Agrimax™ 3H ULN rainfast multipurpose adjuvant was shown to be effective in enhancing the performance of Tebuconazole in the control of Early Leaf Spot, Late Leaf Spot and Southern Stem Rot while increasing yields in peanuts. At a dose rate of 4.8 fl oz/acre of Tebuconazole and 0.1% v/v Agrimax™ 3H ULN rainfast multipurpose adjuvant, a 22% decrease in leaf spot and a 7.7% increase in yield (lbs/acre) were observed compared to the use of Tebuconazole alone.

leaf spot in peanuts



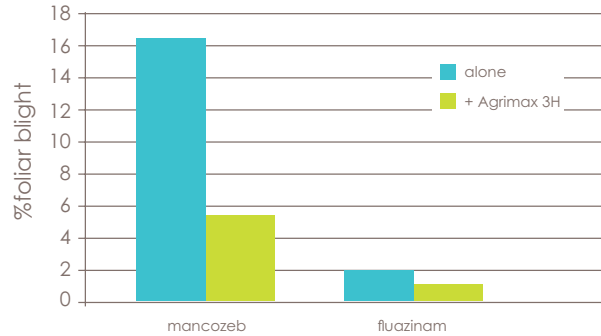
yield in peanuts



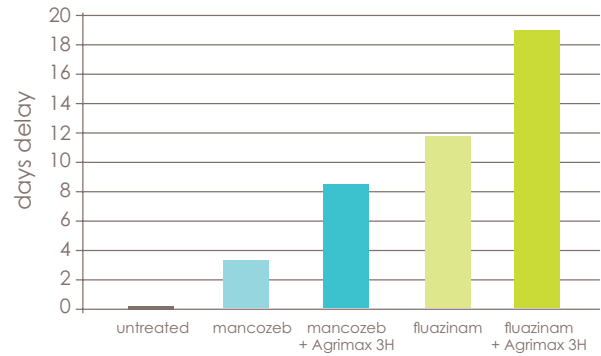
## Agrimax™ 3H ULN rainfast multipurpose adjuvant and potato blight

Agrimax™ 3H ULN rainfast multipurpose adjuvant was used in conjunction with two leading actives designed to fight potato blight – mancozeb and fluazinam. The following studies demonstrate the effectiveness of Agrimax™ 3H ULN in programs to reduce the overall blight, delaying disease onset and in enhancing yield.

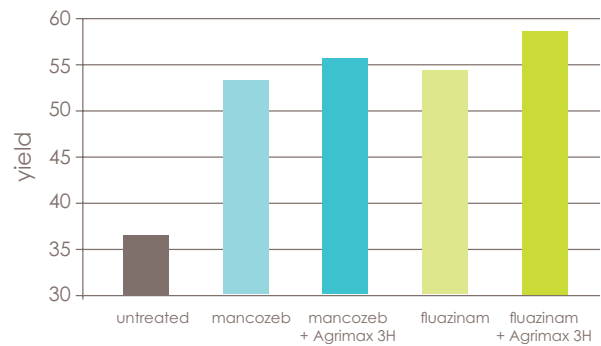
blight trials var. rooster (100% blight in untreated)



blight trials var. rooster delay in disease onset



blight trials var. rooster yield t/ha



## Agrimax™ 3H ULN

### rainfast multipurpose adjuvant

High-performance adjuvancy for fungicides

### physical properties

**description:** Mixture of alkylpyrrolidone solvents and polymers with anionic surfactants and aromatic petroleum oil

**appearance @ 25°C:** clear yellow liquid

**odor:** Aromatic (slight)

**vapor pressure 20°C:** 0.074 kPa (0.56 mm Hg)

**boiling point:** > 100°C

**flash point:** 64°C

**density (g/cm<sup>3</sup>):** 0.9065

**specific gravity:** 0.9092

**pH:** 5.67

### a range of Agrimax™ technology

Ashland produces a number of variants on the Agrimax™ 3H ULN rainfast spray tank adjuvancy system for use in specialized situations. These include a product for use with water soluble fungicides, a product with an alternate solvent system and a very low naphthalene system both tailored to meet local regulatory requirements. Contact your Ashland representative to find out more information on these products.

### usage notes

Agrimax™ 3H ULN rainfast multipurpose adjuvant should be added to a formulation concentrate, or, with agitation to the diluted pesticide in the spray tank. Optimum performance is obtained with a 0.10-0.25% use level at the spray dilution.

Crop conditions and climates vary, so users of Agrimax™ 3H ULN rainfast multipurpose adjuvant should conduct small-scale field trials to determine optimum use levels. The Agrimax™ 3H ULN rainfast multipurpose adjuvant content and fungicide use rates should be varied in these trials to determine the optimum mixture.

Agrimax™ 3H ULN rainfast multipurpose adjuvant can also be used as a formulation concentrate or as a granulating fluid in producing water dispersible granules (WG). For information on these applications, contact your Ashland representative.

Agrimax™ 3H ULN adjuvant is recommended for application in tank mix with pyrethroid insecticides and fungicides for potato, banana, cotton, mango, soybean, peanut and tea crops.

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