



ecoSolv Technologies LLC

Product Review



ecoAgra™ - eA300 Liquid Concentrate - blends with 300 parts water for ready to use (RTU)

ecoAgra™ is described as a plant health wash, and in this respect its ability to rapidly increase growth of biomass and subsequent crop yield, provides many attributes which makes it a single product that can be successfully used on all crops.

Application is made by spraying directly onto the foliage in the normal way. Only two applications are needed - at three or four leaf and then 20 to 30 days later. ecoAgra™ can be applied on its own, or in conjunction with fertilizers and biocides.

An MSDS indicates hazardous ingredients, shipping concerns, and other product information. Review the [ecoAgra™ MSDS](#)

ecoAgra™ Benefits	eA300		
Increased Yield	Nutrient Uptake (8)	Tank Cleaning (3)	No hazard warnings(4)
Higher BRIX Levels (7)	Blends w/Chemicals (2)	Resists Cold Temps (9)	No Drifting Concerns
Conserves Water (6)	Inexpensive to Apply (1)	Aerial/Ground App (5)	No Special Equipment

Benefit Notes:

- (1) The application of ecoAgra™ reduces the use of fertilizers, pesticides and other chemicals, and increases yield/profits that more than cover the cost of ecoAgra™.
- (2) If fertilizer, herbicides or other inputs need to be used, they can be blended with ecoAgra™. We recommend a 50/50 combination, although any mixture will provide benefits.
- (3) ecoAgra™ can be used as a spray tank cleaner when changing input or if it needs cleaning
- (4) There are no EPA regulations, hazard warnings, drifting concerns, or special equipment required when applying ecoAgra™, either from the ground or aerial spraying.
- (5) 12 gallons of RTU per acre may not be possible when aerial spraying, but whatever is put down will provide benefits. We suggest applying at the highest saturation possible.
- (6) When ecoAgra™ is applied, root mass increases in both depth and width can be substantial. This grants the roots longer access to water as it drains out of the soil.
- (7) Higher BRIX levels (natural sugar) make food look and taste better, potentially increasing market value and providing higher income to the operator, specifically growers of grapes, citrus, tomatoes and vegetable where sugar content is important.
- (8) With an increased root mass, whether fibrous or tap, plants treated with ecoAgra™ have access to more soil nutrients, thus speeding up growth and the vitality of plants.
- (9) ecoAgra™ can be applied to crops the day before an anticipated frost to protect plants against damage.





What is ecoAgra™?

How ecoAgra™ Works

ecoAgra is absorbed into the pores on the surface of leaves and accelerates the metabolic process which stimulates the activity of naturally available enzymes and hormones in the plant. As a consequence, the plant feeds better, growing healthier, stronger, and faster, with an increased root mass, which overall results in the increase in biomass and higher yields.

ecoAgra™ encourages and stimulates the movement of fertilizers and other nutrients from the soil into the plant through its root system. By spray washing plants you are also cleaning the plant leaves, and clean plant leaves enhances photosynthesis, increasing a plants ability to fight pests and disease.

When applied to bare root stock before planting, or saturating the root structure when in place, ecoAgra™ encourages new growth and root development which has a pronounced effect on plant size and vigour. A well developed root system anchors and gives support reducing lodging under adverse weather conditions.

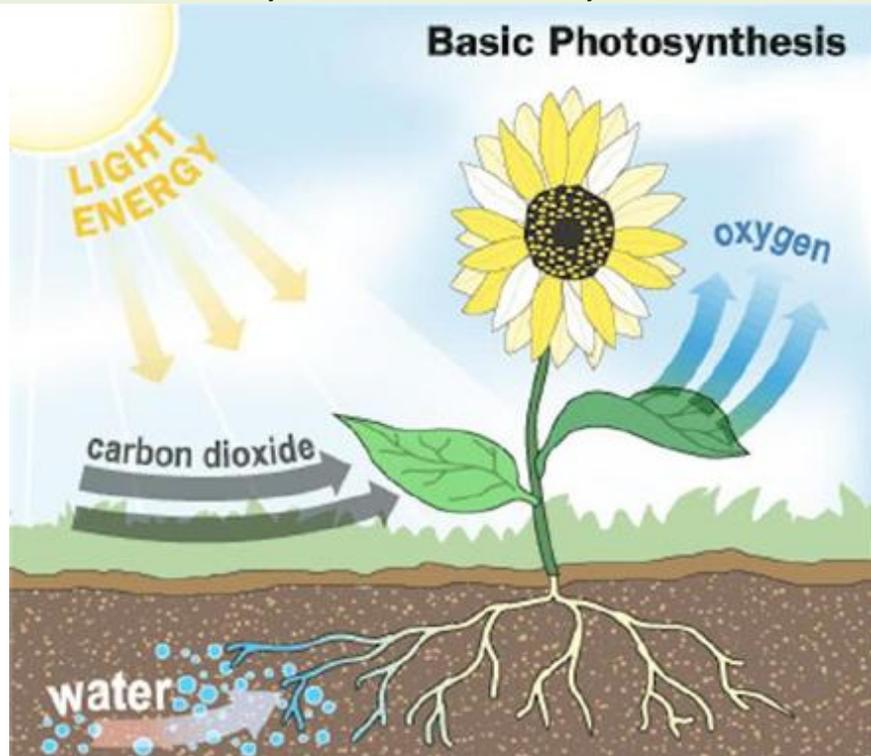
ecoAgra™ - It's Natural

Although ecoAgra™ provides many of the same benefits as fertilizers, it is not classified as such because its main function is not to provide nutrients to the soil and/or plant, but to increase photosynthesis, naturally through increased biomass.

ecoAgra™ aids the uptake of trace elements typically found in commercial fertilizers.

By the time ecoAgra™ is diluted for spraying to the plant, it looks and tastes like water, and requires no hazard signs, special equipment, or EPA warnings during application.

Photosynthesis – The Natural Way to Grow



Plants are complex organisms. We use their abilities to absorb liquid through the leaves as well as through their roots. Hence we can spray plants with biocides, both chemical and biological, as well as liquid fertilizers.





Photosynthesis, Respiration and Transpiration

Photosynthesis - the process of capturing light energy and converting it to sugar energy in the presence of chlorophyll using carbon dioxide and water. A byproduct of this action is oxygen.

Respiration - the process of metabolizing sugars to yield energy for growth, reproduction, and other life processes.

Transpiration - the loss of water vapor through the stomata on the underside of leaves

<http://www.ext.colostate.edu/mg/gardennotes/141.html>.

Plant Growth Factors

Plant hormones are the chemicals produced by plants and they are instrumental in regulating the growth process.

<http://www.ext.colostate.edu/mg/gardennotes/145.html>

The Root of the Matter

Plant growth begins with the root system. When a seed germinates, it produces an embryonic root that grows into the soil. As the root grows, it is as a fibrous or a tap type root system or a combination of both. The development of a strong and extensive root system, aided by ecoAgra™, increases biomass, and therefore yield.

<http://www.ext.colostate.edu/mg/gardennotes/132.html>

Further information about Plant Structures and photosynthesis can be found on the below link:

<http://www.ext.colostate.edu/mg/gardennotes/131.html>

ecoAgra™ Sustainability

The sustainability of ecoAgra™ is emphasized by the fact that it is made entirely of plant derived materials. It reduces the quantities of fertilizer needed yet significantly increases yields on plants that are robust from the root system to the seed head.

Less fertilizer applied means less to run off as pollution - deep roots means better use of available water - strong plants and root systems reduce plant and soil problems.

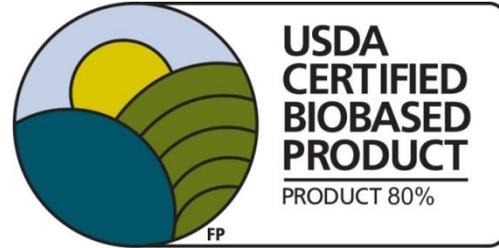
Since ecoAgra™ increases the yield of its own ingredients, it helps create itself, resulting in circular sustainability.





ecoAgra™ - Why Only 80% Biobased **A USDA Certified Biobased Product**

The percentage shown on the USDA Certified Biobased logo indicates the amount of biobased content that a product tests out to. Although ecoAgra™ is formulated 100% from plants, one ingredient is processed from agricultural field waste material and it has a small amount of ancient carbon.



Blending ecoAgra™

We have had good success blending ecoAgra™ with fertilizer, herbicides and other inputs. Although we recommend a 50/50 mixture, any combination will allow ecoAgra™ to enhance the performance of the input by increasing the uptake.

Example: A Thai rice test realized an increase of 12%-17% in grain size and 25%-29% in grain weight per square meter on rice that was treated with 50% ecoAgra™ and 50% fertilizer. Also noted were a substantial increase in root size and biomass.

This is a brief summary of the rice test (complete test available)

Harvest Results		55 days after 1 st treatment the rice was harvested				
Plot Number	# Grains	Change %	Grain Wght	Change %	Straw Wght	Change %
Units	m ²		g/m ²		g/m ²	
TC-1	84.8		364.0		250.7	
TC-2	99.3	+17.1%	457.1	+25.6%	253.1	+1.0%
TC-3	95.2	+12.3%	470.8	+29.3%	265.1	+5.7%





ecoAgra™ Trace Ingredients

	Amount	Units
Total Solids	0.37%	%
Total Nitrogen (N)	0.033	%
Nitrogen, Ammoniacal (N)	0.014	%
Phosphorus (P)	< 0.1	%
Iron	< 2.5	mg/Kg
Magnesium (Mg)	< 2.5	mg/Kg
Potassium (K)	< 2.5	mg/Kg
Sodium (Na)	1.3	mg/L

ecoAgra™ Ingredients: alkanolamines, amino acids, corn oil, nonionic surfactants, plant based fatty acids, and organic alcohol in base of colloidal micelles.

ecoAgra™ Hazard Ratings:

Rating Standards: Extreme = 4, High = 3, Moderate = 2, Slight = 1, Insignificant = 0

ecoAgra™ Rating: Health = 0, Fire = 0, Reactivity = 0, Special Requirements = 0

ecoAgra™ Storage: ecoAgra™ should not be frozen, and should be stored in a cool covered area. The shelf life of ecoAgra™ is approximately 5 years if stored properly.

ecoAgra™ The Obvious Difference



The houseplant above was misted with ecoAgra™ once a month from November 2010 to March 2011. The treatment provided increased size and color to the leaves, and dramatically impacted the root mass. When the plant treated with ecoAgra™ was taken out of the pot (picture at right), the roots were wrapped around the bottom. This increase in root mass provides plants with the ability to uptake more nutrients from the soil, and also puts them in longer contact with water as it drains through the soil. This can lower irrigation requirements, and help a plant in times of drought if it is not irrigated.



What Is Fertilizer?

Fertilizer is any organic or inorganic material of natural or synthetic origin that is added to a soil to supply one or more plant nutrients essential to the growth of plants. A recent assessment found that about 40% to 60% of crop yields are attributable to commercial fertilizer use. They are essential for high-yield harvest: European fertilizer market is expected to grow to €15.3 billion by 2018.

Fertilizer Benefits

- ❖ Increased yield

Issues with Fertilizer

- ❖ Non-sustainable resources
- ❖ EPA hazard labels required
- ❖ Cost of spray uniforms/masks etc
- ❖ Drifting concerns
- ❖ High production cost
- ❖ High per-acre application cost
- ❖ Environmentally harmful
- ❖ Runoff creates algae blooms in water
- ❖ Impacts wild & domestic animals
- ❖ Contain fluorides, cadmium & uranium
- ❖ Long term use may sterilize soil
- ❖ Overuse may cause "fertilizer burn"

ecoAgra™ Uses:

► Field Crops ► Vegetables ► Fruits ► Trees ► Shrubs ► Grass ► House Plants ► Produce Washing

eA300 FAQ

Q: What is the dilution rate for eA300 application?

A: For the initial application, the preferred dilution is 1 to 300 of water. **[Do not under dilute]**. Review the **Application Procedures** for detailed information.

Q: What is the saturation rate for eA300?

A: As a rule of thumb, 45 liters (12 US gallons) should be sufficient to cover one acre, although more will not hurt the crop. This equates to 5 oz/acre of **eA300**. For greater coverage, 20 gallons or more may be used. Benefits are also derived by pre-soaking the seeds. See more info below.

Q: How often should I apply eA300?

A: This is dependent on the type of plant combined with weather and soil conditions. Pre-treating the seeds and then applying **ecoAgra** when plants have good leaf growth, typically between the 3 and 5 leaf stage is advantageous. From then on apply per the Application Instructions below, although it is typically 2 - 3 times per season. Any time a crop is being treated with such things as herbicides, **eA300** may be mixed in with the chemical to promote healthier growing conditions.

Spraying should help after a heavy rain, especially if it is hot, as high humidity encourages fungus growth. If low temperatures are predicted, an application of **eA300** should protect fruit and vegetables from an impending frost if treated within 24 hours.





Q: When is the best time to apply eA300?

A: It is important to apply **eA300** in cool conditions, preferably in the early morning or late at night, and not in direct sunlight if possible.

Q: What type of sprayer and nozzle should I use?

A: It really doesn't matter, although spraying with a light mist is the preferred method of application. What is important is that the plants are drenched to the point of run-off. In order for **eA300** to have maximum effectiveness spraying all parts of the plant, including the underside of the leaves and the stalks should be done if possible.

Q: What water pressure should be used to spray crops?

A: This is dependent on the plant. Hardy crops may be sprayed using up to 400 PSI (sometimes required when applying chemicals), while more delicate plants such as lettuce and flowers should be sprayed at a pressure that doesn't damage the plant, typically in the 15-40 PSI range.

Q: How long after crop dusting with eA300 before plants should be irrigated?

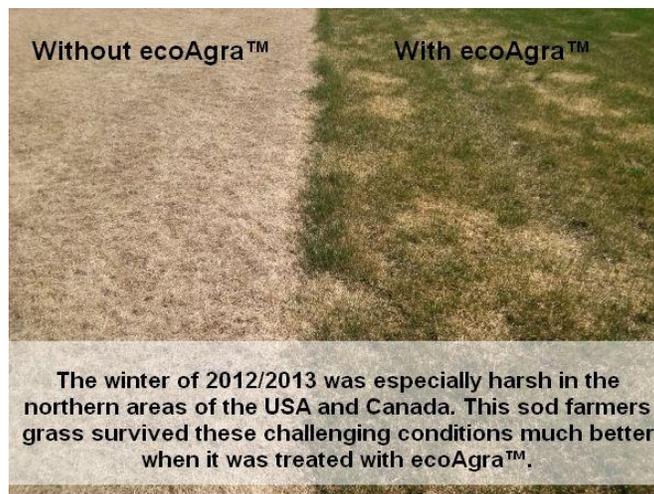
A: If a crop is being treated with **eA300** by air, 24 hours should suffice before a full irrigation, although leaving it on longer may be beneficial. If watering is required before that, wait until the plant is fully dry before further irrigation. For full benefits, the crop should be treated during a full irrigation rather than air spraying, to ensure that the plant is thoroughly wet until the leaves, stalks are soaked.

Q: Can I apply eA300 while plants are still wet from rain or dew?

A: Yes, this should not make any difference, since the spray pressure should bring **eA300** into contact with the surfaces of plants.

Q: What are the main benefits that can be anticipated after applying ecoAgra™?

- ❖ Increased plant size, yield and health
- ❖ Higher germination rate if seeds are pre-treated
- ❖ Increased BRIX levels (plants natural sugar) of the plant if applicable
- ❖ Increased yield produces more profit per acre





eA300 Application Procedures

Important Pre-Application Note: It is best to spray **eA300** when it is cool outside, preferably in the early morning, or night. Spraying during hot sunlight could cause burning of the plants.

eA300 Dilution Rates

- Initial Treatment:** 1:300 = 1 part of **eA300** to 300 parts water = 300 parts RTU
 (or mix 5 oz (150ml) of **eA300** per 12 gal (45 L) water)
- Produce Wash:** 1:300 (removes pesticides, dirt & bug droppings from fruits & vegetables)
- Damaged Plants:** 1:300 (saturate damaged area twice a week)
- Bareroot Stock:** 1:400
- Grafting, Air-Layering:** 1:300
- Rooting of Cuttings:** 1:300
- Combination Spray:** 1:400(1)
- Leaf Polish/Maint:** 1:600(2)
- Seed PreTreatment:** 1:510 or ¼ oz / gallon (3)

Dilution Notes:

- (1) Combination Spray is when **eA300** is mixed with fertilizer, pesticide, etc. Although we do not recommend this, **eA300** should always be mixed with other products per their label instructions.
- (2) If plants are healthy and for ongoing maintenance, dilute **eA300** with 600 parts water.
- (3) Dilute 1 ounce (30ml) per 4 gallons (15 L) of water or ¼ oz (7 ml) per gallon (liter) water. Soak seeds thoroughly for about 15 minutes, 12 to 24 hours before planting.

Other eA300 Uses

Plastic Sprayer Tank – Before spraying, clean spray rig tank with 16oz/50gal of **eA300**, making sure that the solution contacts all surfaces. This will remove any previous contaminants, even from the pores of the plastic tank. **ecoAgra™** can also be used to clean steel tanks. There is no need to clean out the tank for after the use of **eA300**, before adding any other solution.

Tank Mixing: Read all products labels carefully and adhere strictly to the instructions for use and advice regarding whether or not products should be tank mixed and prior tank cleaning. When mixing with other chemicals, always follow label directions and mixing instructions of the chemical that is to be tank mixed with **eA300**.





eA300 Application & Saturation Rates

One (1) acre requires 45 liters (12 US Gallons) of **eA300 RTU** (i.e. in its ready to use diluted form) for the initial treatment. For optimum results, most crops should be sprayed 2-4 times during growing season (see specific applications below). Once a plant is growing well, the dilution rate may be cut in half (i.e. 1 part **eA300** to 600 parts water).

eA300 Coverage	1 gallon	5 gallon	55 gallon	250 gallon
12 gal RTU acre 45.42 L RTU acre	25 acres	125 acres	1,375 acres	6,250 acres

Specific Plant Application Procedures

Alfalfa: Apply two weeks after the crop breaks winter dormancy. A second application may be applied after the first cut; however there must be adequate new growth to insure spray contact with the leaf surfaces.

Beans: Apply at 4 to 6 leaf stage. Apply 2nd application 16 to 20 days after 1st application.

Corn: Apply at 4 to 6 leaf stage. Apply 2nd application 16 to 20 days after 1st application.

Cotton: Apply 21 to 28 days after emergence and 10 to 14 days later.

Cereals: Apply when crop is 6 inches tall. Apply 2nd application after 20 days.

Grapes: Apply before fruit set. Repeat one month later and again if plants look stressed.

Peanuts: Apply at the 6 leaf stage and again 7 to 14 days later.

Potatoes: Apply one week after 100% emergence. Apply again at 10 to 14 days.

Peppers: Apply at the 3 to 4 leaf stage.

Raspberries: Apply at start of flowering.

Rice: Apply at start of tillering.

Soybeans: Apply when crop is 2 to 6 inches tall. Apply 2nd application 16 to 20 days after 1st application.

Tobacco: Apply at the 3 to 4 leaf stage.

Tomatoes: Apply at the 3 to 4 leaf stage. Repeat one month later and again if plants look stressed.

Turf: Apply as soon as growth commences in the spring and repeat monthly, or when needed.

Application Notes:

Do not over-apply ecoAgra™. For most crops, we recommend the first application when plants have reached the 3-5 leaf foliar stage, and once again about a month later. It may be added again if plants look stressed.

Do not under-dilute ecoAgra™ as that may cause browning of the plant. If possible, it is best to apply ecoAgra™ in the cool of the morning before the sun shines on the plants.

created by nature ...



... perfected by science



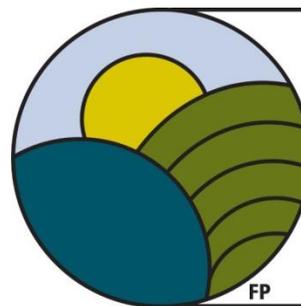
The roots of the tree on the right were sprayed once with ecoAgra in the spring only. Note the difference in the size of the trees, and the amount of flowers.

ecoAgra™ - Come Grow with Us

A USDA Certified Biobased Product



A new way of looking at agriculture -



**USDA
CERTIFIED
BIOBASED
PRODUCT**
PRODUCT 80%

For more information about ecoSolv products, please visit our website at www.ecosolv.com

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