6/6/2013

ecoSolv Technologies LLC – Test Report

Independent ecoAgra™ Evaluation on Rice – Thailand 2013

ETL Note: These independent tests were conducted by Project Field Co, Ltd at a field at Tumbon TungKok, Ampur Songpeenong, Supanburi province, Thailand, with input from our sales associate in Thailand, James Devine. If you have any questions regarding these reports, please contact us at info@ecosolv.com.

Equipment and Methods

Plant Tested: Pathumthani 1 rice - this rice was selected because it is not sensitive to photoperiod. This crop is harvested in 125 days and typically produces high yield and consistency. It is resistant to some rice disease such as yellow orange leaf disease, rice ragged stunt disease, white-backed planthopper, WBPH, BLAST disease, bacterial leaf blight disease and BPH.

Products Tested

ecoAgra™
Fertilizer 46-0-0
Fertilizer 16-8-8
Fungicides & Insecticides as needed

Planting

- The 15cm high rice plants were transplanted on Feb 5th, 2013 in groupings of 3-5 plants

Treatment Method

- The first treatment began 7 days after planting
- The test plot was divided into 3 **sections** for comparison evaluation
    - **Section 1 (TC-1):** Control, fertilizer only
    - **Section 2 (TC-2):** Fertilizer with ecoAgra™
        - 50 ml per 20 liters water
        - every 15 days
    - **Section 3 (TC-3):** Fertilizer with ecoAgra™
        - 50 ml per 20 liters water
        - every 30 days
    - 46-0-0 fertilizer was applied 2 times 15 days after transplanting
    - 16-8-8 fertilizer was applied 45 days after transplanting

Plot Maintenance

- Water levels were maintained at 5-10 cm
- Weeds were kept out of the converter
- Fungicides and insecticides were applied as needed

Growth and Productivity Analysis

15 days after spraying: Plants were randomly measured for height of stem and root length.

Harvest Evaluation

- Yield at was evaluated at harvest as follows;
  - Number of seeds per grains
  - Weight of grain
  - Weight of straw

Testing Data

Test Dates: From February to May 2013
Testing Area: 86 m X 60 m

Plot Designations

TC-1	Control with fertilizer only – **size: 86 m x 20 m**
TC-2	ecoAgra™ with fertilizer applied every 15 days **- size: 86 m x 20 m**
TC-3	ecoAgra™ with fertilizer applied every 30 days **- size: 86 m x 20 m**

Table Notes:

Wght = Weight
Change % = Percentage of change from Control Plot (TC-1)

Test Results – 22 Days After Treatment

Test #1	**App Date: 15 days after planting**		**Test Date: 22 days after treatment**	
Plot Number	Stem Height (cm)	Change %	Root Height (cm)	Change %
TC-1	35.4		12.8	
TC-2	31.4	-11.3%	11.2	-12.5%
TC-3	33.9	-4.2%	13.0	+1.5%

Test #1 Photos – 22 days after treatment

TC-1

TC-2

TC-3

Plot Designations

TC-1	Control with fertilizer only – **size: 86 m x 20 m**
TC-2	ecoAgra™ with fertilizer applied every 15 days **- size: 86 m x 20 m**
TC-3	ecoAgra™ with fertilizer applied every 30 days **- size: 86 m x 20 m**

Test Results – 37 Days After Treatment

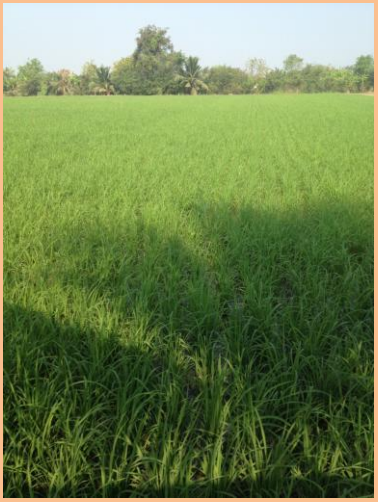
Test #2	**1st App Date: 15 days after planting**		**Test Date: 37 days after treatment**	
Plot Number	Stem Height (cm)	Change %	Root Height (cm)	Change %
TC-1	45.7		15.1	
TC-2	50.3	+10.0%	19.1	+26.5%
TC-3	46.1	+0.1%	16.4	+8.6%

Test #2 Photos – 37 days after treatment

TC-1

TC-2

TC-3



Plot Designations

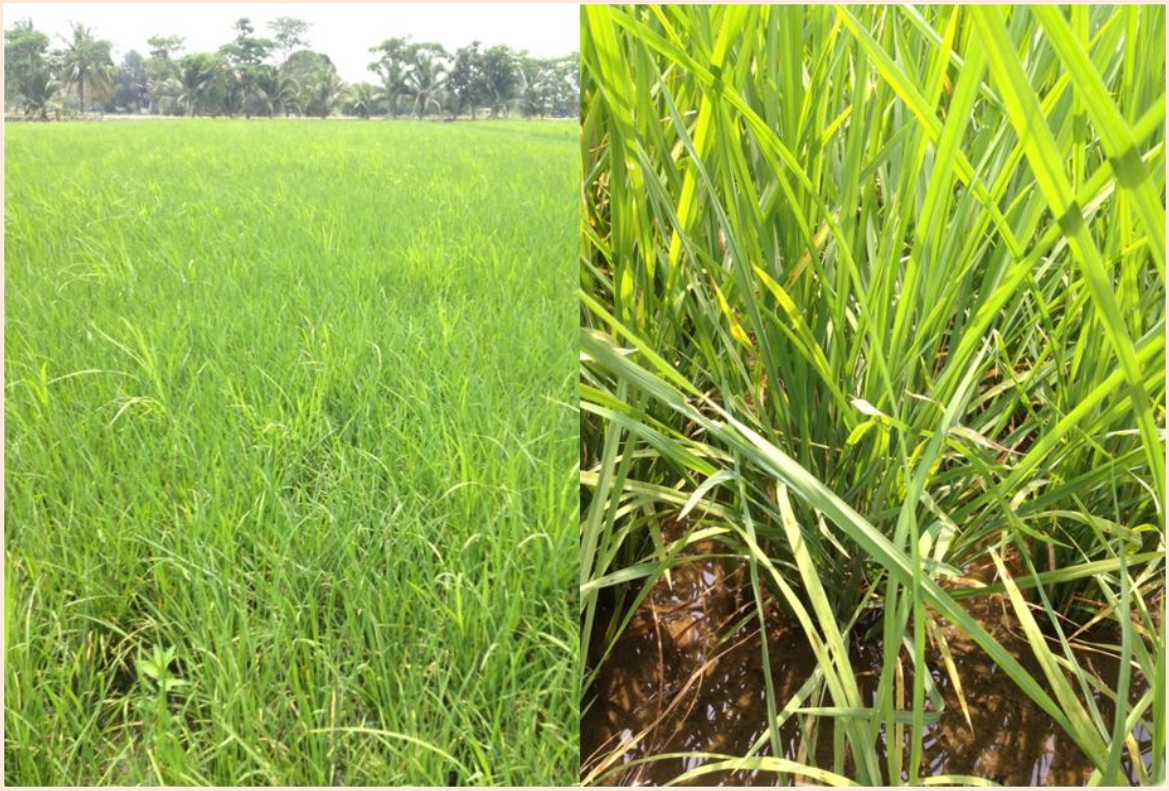
TC-1	Control with fertilizer only – **size: 86 m x 20 m**
TC-2	ecoAgra™ with fertilizer applied every 15 days **- size: 86 m x 20 m**
TC-3	ecoAgra™ with fertilizer applied every 30 days **- size: 86 m x 20 m**

Test Results – 55 Days After Treatment

Test #3	**1st App Date: 15 days after planting**		**Test Date: 55 days after treatment**	
Plot Number	Stem Height (cm)	Change %	Root Height (cm)	Change %
TC-1	83.6		19.5	
TC-2	102.2	+22.2%	22.9	+17.4%
TC-3	104.0	+24.4%	21.2	+8.7%

Test #3 Photos – 55 days after treatment

Plot TC-1

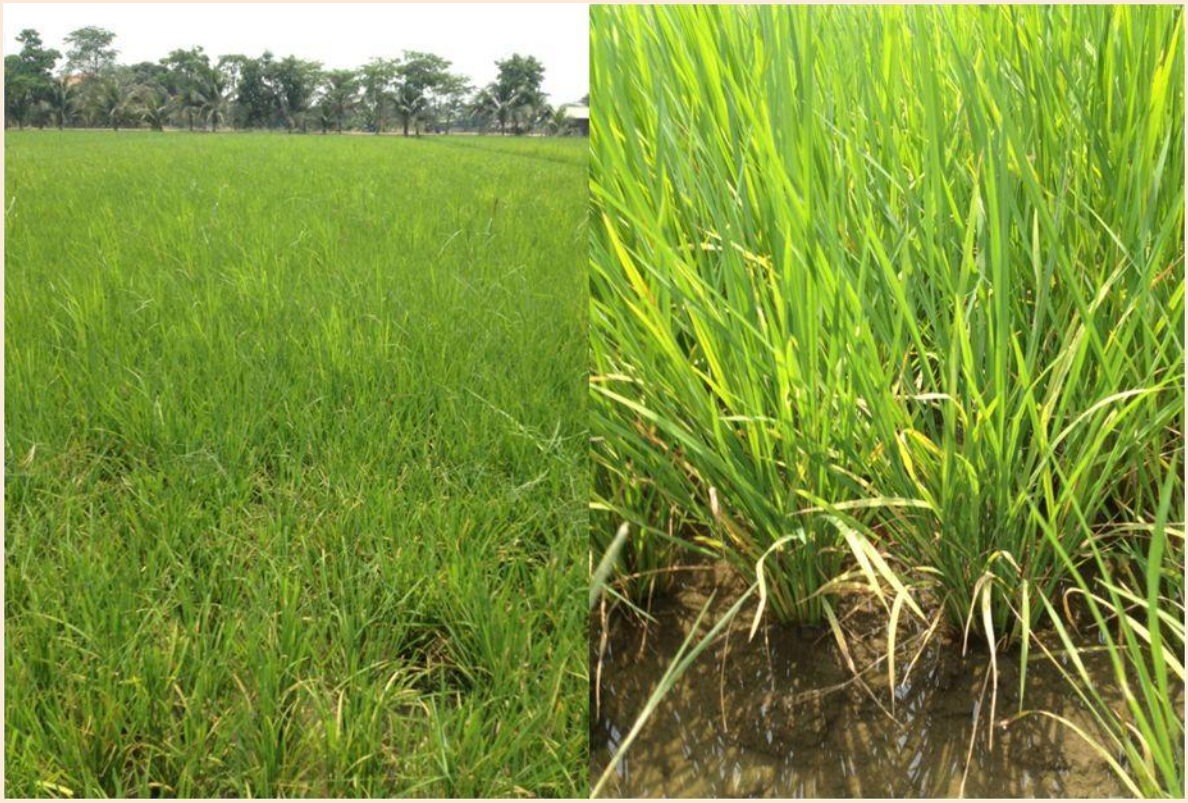


Plot Designations

TC-1	Control with fertilizer only – **size: 86 m x 20 m**
TC-2	ecoAgra™ with fertilizer applied every 15 days **- size: 86 m x 20 m**
TC-3	ecoAgra™ with fertilizer applied every 30 days **- size: 86 m x 20 m**

Test #3 Photos – 55 days after treatment

Plot TC-2

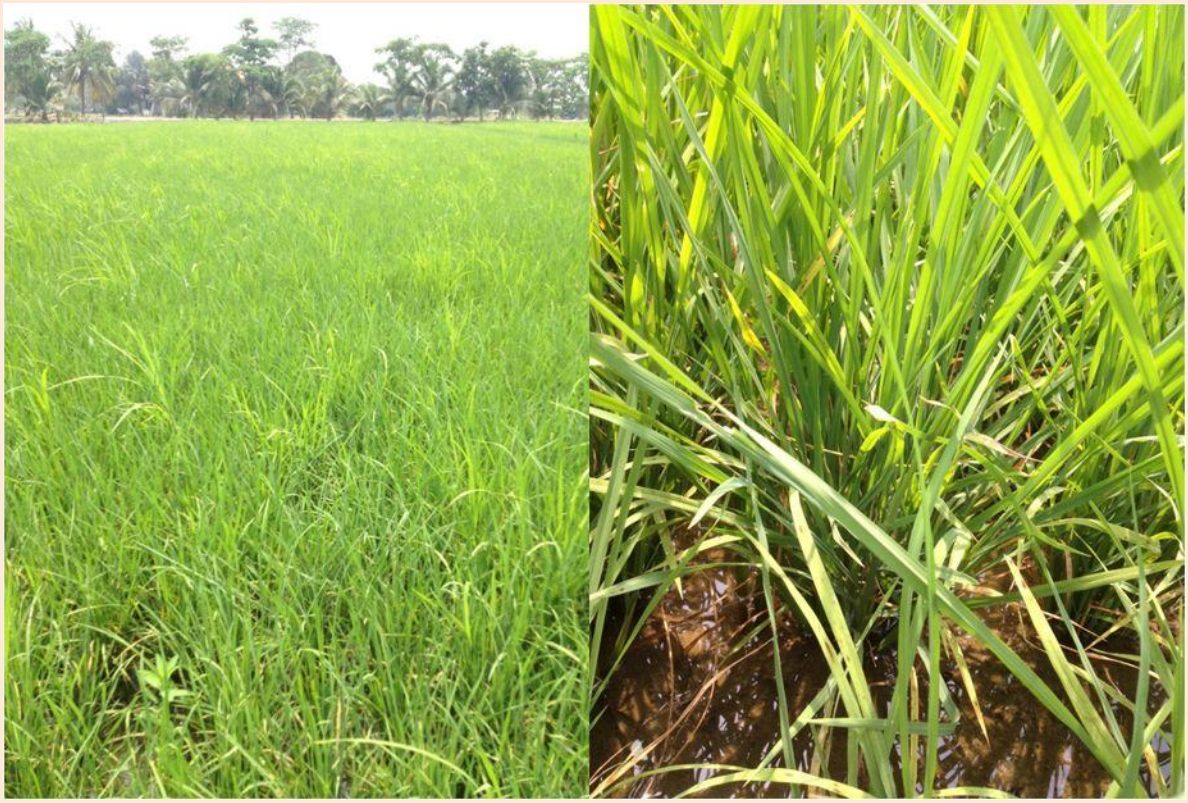


Plot Designations

TC-1	Control with fertilizer only – **size: 86 m x 20 m**
TC-2	ecoAgra™ with fertilizer applied every 15 days **- size: 86 m x 20 m**
TC-3	ecoAgra™ with fertilizer applied every 30 days **- size: 86 m x 20 m**

Test #3 Photos – 55 days after treatment

Plot TC-3



Plot Designations

TC-1	Control with fertilizer only – **size: 86 m x 20 m**
TC-2	ecoAgra™ with fertilizer applied every 15 days **- size: 86 m x 20 m**
TC-3	ecoAgra™ with fertilizer applied every 30 days **- size: 86 m x 20 m**

Harvest Results	55 days after 1st treatment the rice was harvested					
Plot Number	# Grains	Change %	Grain Wght	Change %	Straw Wght	Change %
Units	Square M		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%

TC-1 Harvest

TC-2 Harvest

TC-3 Harvest

ecoSolv Summary Notes:

These independent tests showed impressive yield results of 25.6% to 29.3% increase in grain weight. The number of grains per plant, root mass and straw weight also increased substantially.

It is important to note that results will vary depending on environmental conditions, such as soil type, soil nutrients, fertilizer use, temperature and other weather related conditions.

It is also interesting to note that plants seem to do better when ecoAgra™ is applied every 30 days rather than every 15 days. In other words, use less, gain more.

As the table below indicates, even though the number of grains per square meter were less in the TC-3 plot (treatment every 30 days) than in the TC-2 plot (treatment every 15 days), the grain weight increased. This indicates that the grains were larger when less ecoAgra™ was used.

Harvest Results	55 days after 1st treatment the rice was harvested					
Plot Number	# Grains	Change %	Grain Wght	Change %	Straw Wght	Change %
Units	Square M		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™ Application Notes

- For best results, apply ecoAgra™ in the morning or at night
- Apply the initial ecoAgra™ treatment at the 3-5 leaf foliar stage
- Re-apply 30 days later for best results
- Re-apply ecoAgra™ if plants looked stressed
- Do not overuse or apply ecoAgra™ under-diluted

USDA CERTIFIED BIOBASED PRODUCT
PRODUCT 80%
FP

ecoAgra™ is a USDA Certified Biobased Product and listed on the Federal Procurement Program (FP)

For more information about ecoAgra™ please visit our website at www.ecosolv.com