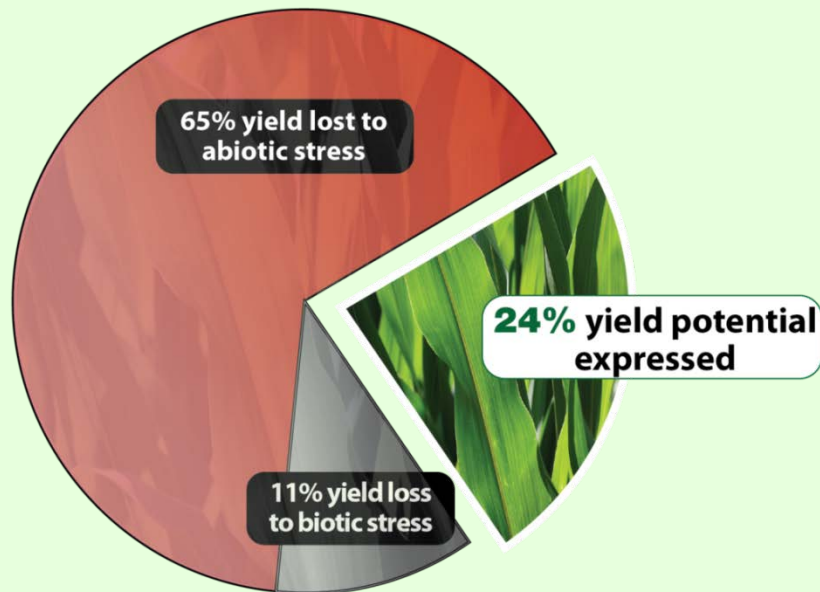


NUTRIPLANT® Products

To support crop growth and development,
especially under stress conditions



Stress Reduces Yields



According to Bray¹ et al., crops produce only 24% of their yield potential



¹ Mean of 6 crops: barley, maize, potatoes, soybeans, sugar beets, wheat

Bray, Bailey-Serres and Weretilnyk. 2000. Responses to abiotic stresses. *In*: W Gruissem, B. Biology of Plants. American Society of Plant Physiologists, Rockville, MD, pp 1158–1249.

By supporting crop
growth and development,
Nutriplant products
increase both yield and
quality of crops



NUTRIPLANT® Products

- Nutriplant SD/SL seed treatment
- Nutriplant AG foliar nutrition



NUTRIPLANT® SD/SL

Product Description

Nutritional supplement to aid seedling emergence and vigor of agricultural crops

Available in 2 forms:

- Dry Nutriplant SD for application in the field at planting
- Liquid Nutriplant SL for commercial and in-furrow application



5 NUTRIPLANT™
Seed Treatment

Modes of Action

Nutriplant SD/SL increases crop yield by:

- ✓ Providing essential nutrients for development of strong shoots and roots
- ✓ Supporting seedling vigor
- ✓ Supporting root hair growth
- ✓ Helping seedling growth, especially during stress conditions
- ✓ Overcoming negative effects of pesticides applied to seeds



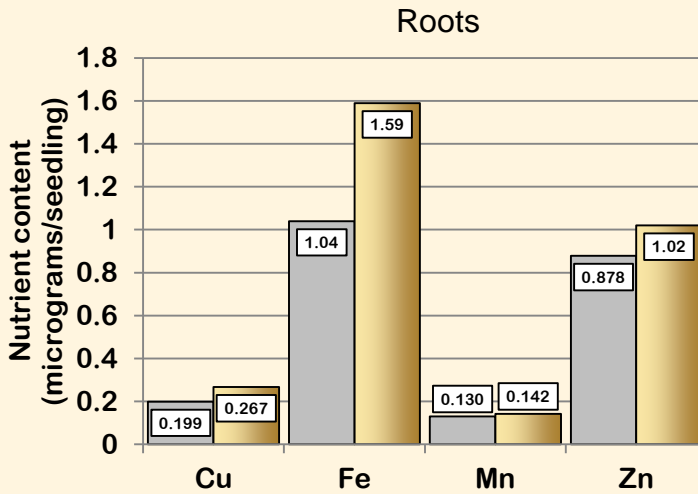
NUTRIPLANT®
SD/SL

Mode of Action

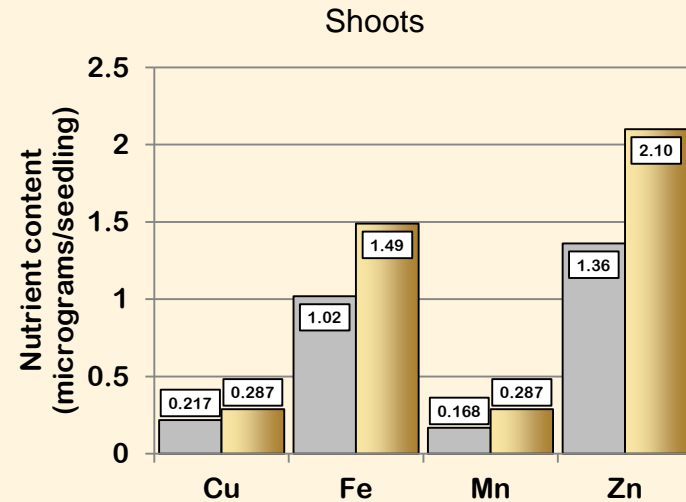
Nutriplant SD/SL provides nutrients essential for development of strong shoots and roots



Nutriplant SD Provides Essential Nutrients



In roots Nutriplant SD increased the content of copper (Cu) by 35%, iron (Fe) by 53%, manganese (Mn) by 9.2% and zinc (Zn) by 16% over untreated control



In shoots Nutriplant SD increased the content of copper (Cu) by 32%, iron (Fe) by 46%, manganese (Mn) by 71% and zinc (Zn) by 54% over untreated control

Source: Cytozyme Laboratories, Inc., USA

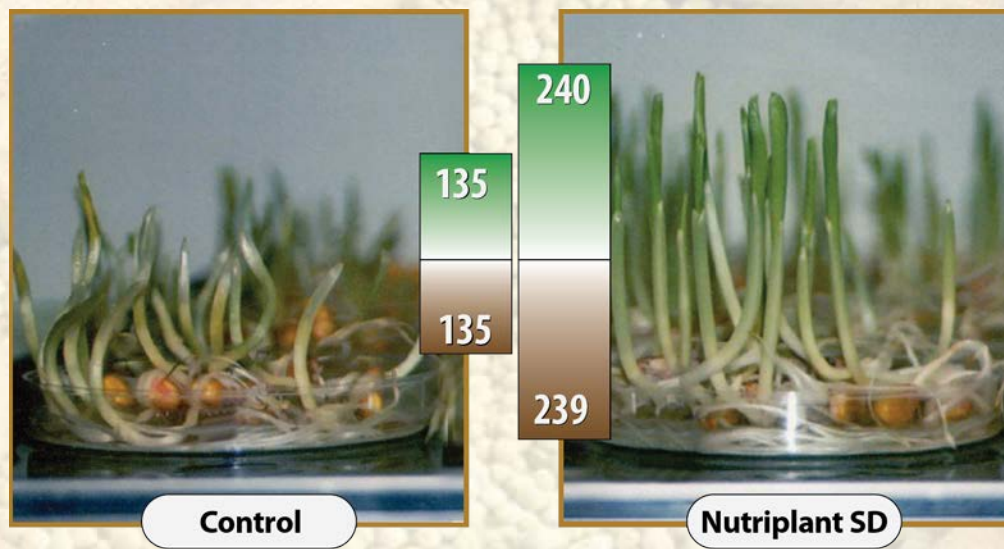
NUTRIPLANT®
SD/SL

Mode of Action

**Nutriplant SD/SL supports
seedling vigor**



NUTRIPLANT® SD/SL



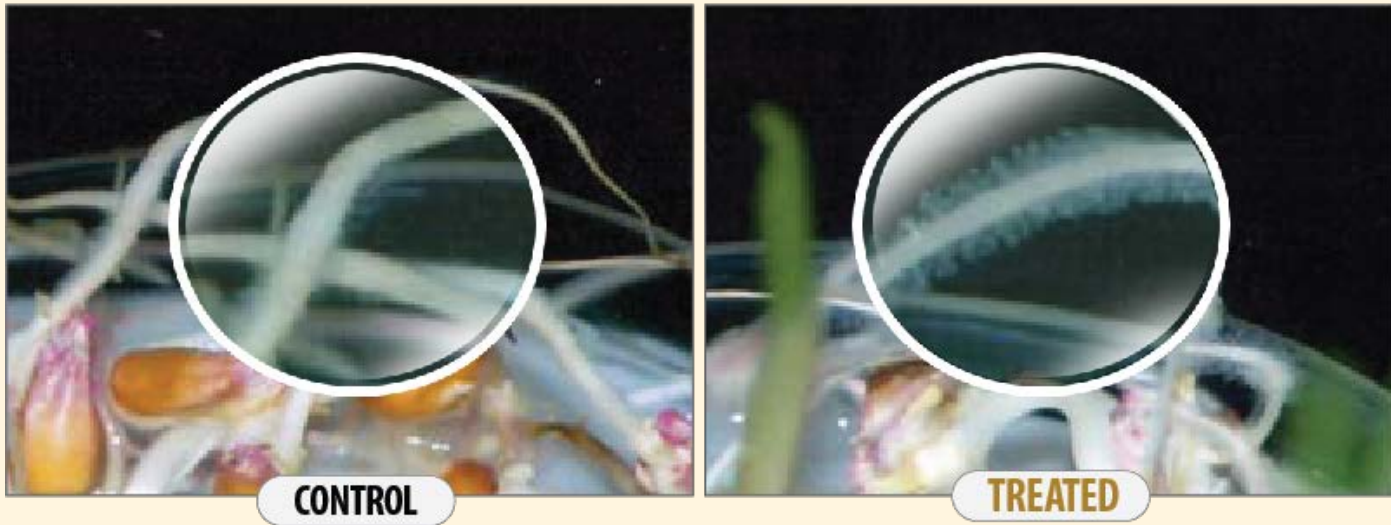
 Shoot mass (mg/seedling)  Root mass (mg/seedling)

Nutriplant SD increased both root and shoot mass of corn seedlings over control

Source: Cytozyme Laboratories, Inc., USA

NUTRIPLANT® SD/SL

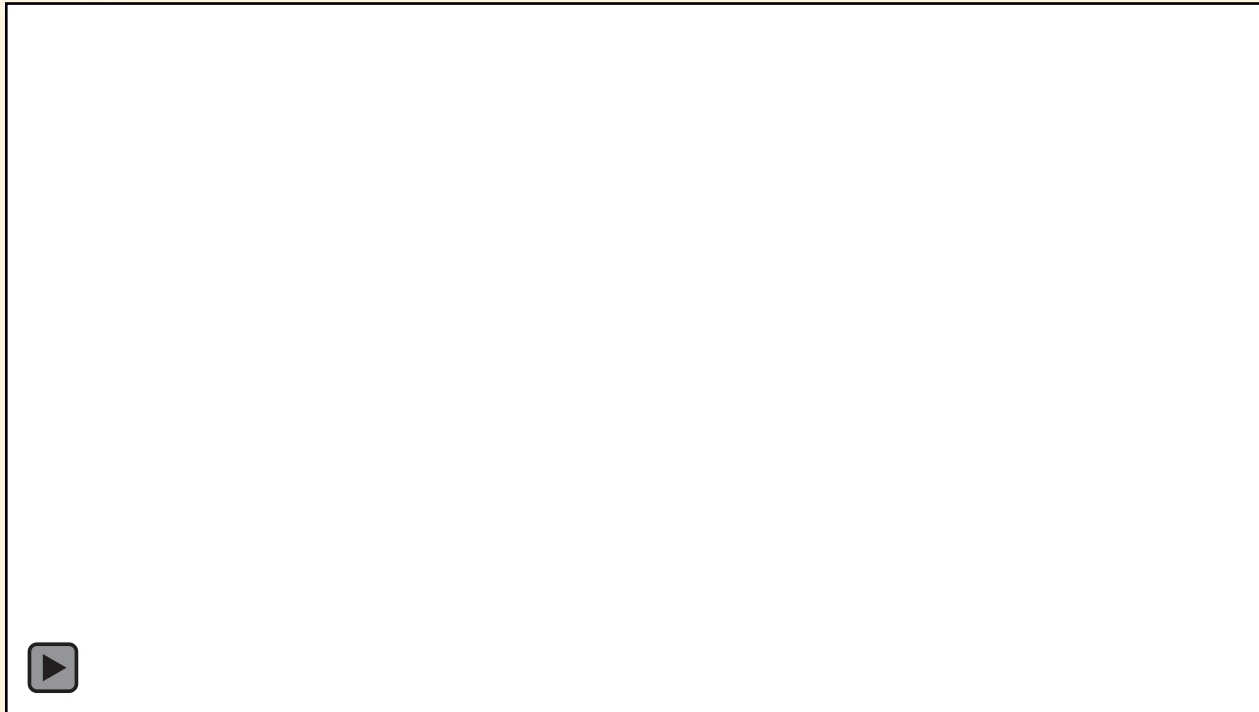
11 Laboratory Results



Nutriplant SD produced more root hairs for better water and nutrient uptake

Source: Cytozyme Laboratories, Inc., USA

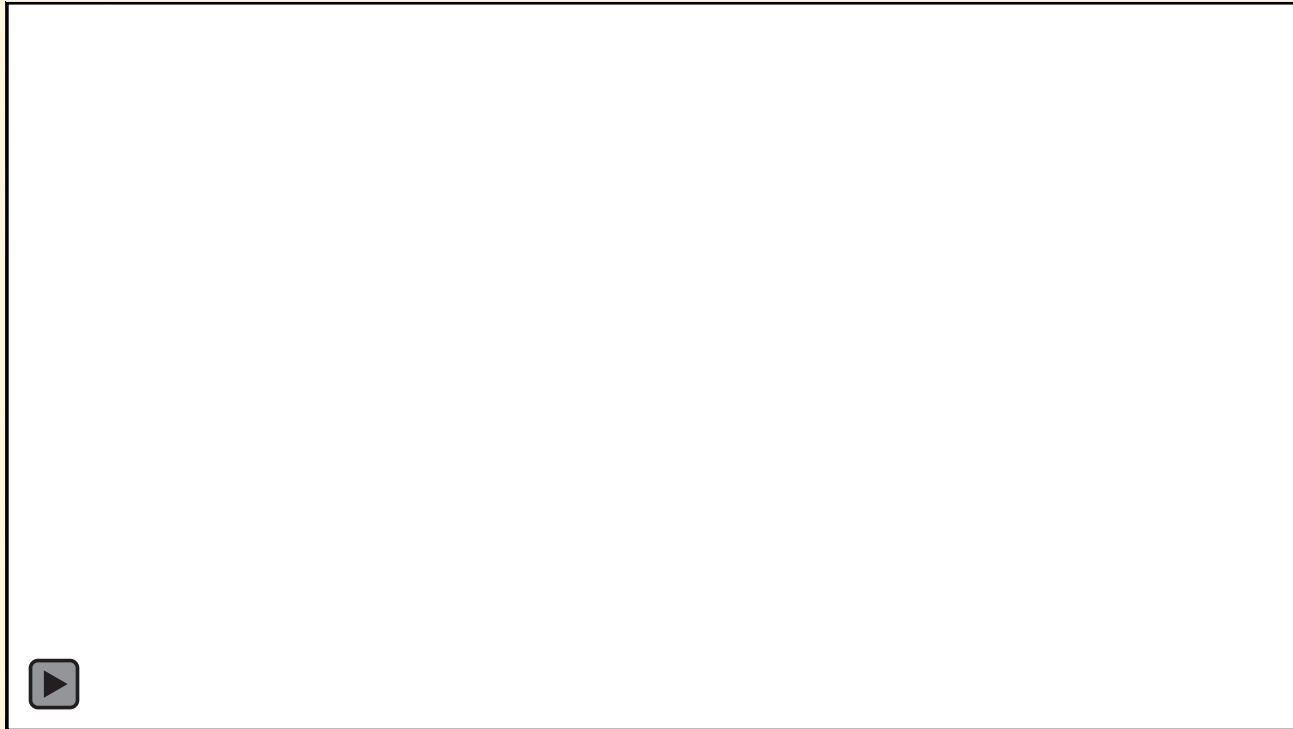
**Nutriplant SD Application
Effects on Corn**
(Time Lapse Video)



Nutriplant SD treatment produced roots faster than untreated control

*Tests performed using Nutriplant SD at 500 g per 100 kg seed (8 oz per 100 lb seed)
Source: Cytozyme Laboratories, Inc., USA*

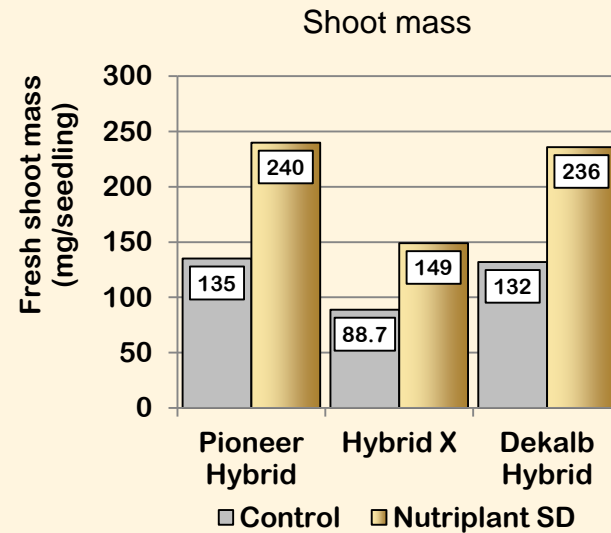
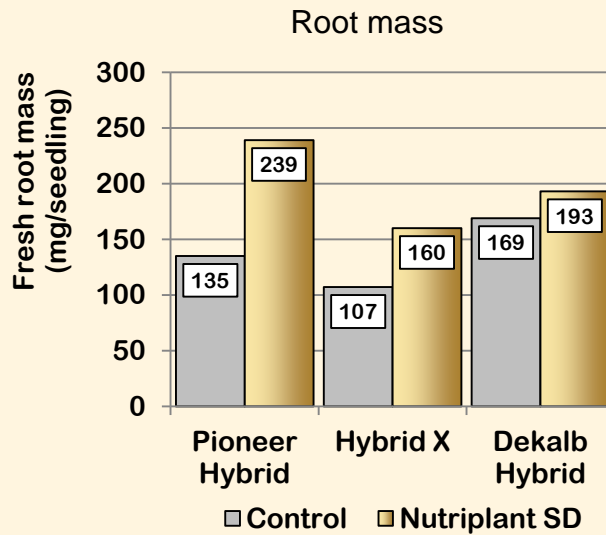
Nutriplant SD Application Effects on Corn (Time Lapse Video)



Nutriplant SD treatment produced shoots faster than untreated control

*Tests performed using Nutriplant SD at 500 g per 100 kg seed (8 oz per 100 lb seed)
Source: Cytozyme Laboratories, Inc., USA*

Supports Seedling Vigor



Nutriplant SD increased fresh shoot mass by an average of 75% and fresh root mass by an average of 47% in Pioneer, Dekalb and other leading corn hybrid

Source: Cytozyme Laboratories, Inc., USA

NUTRIPLANT®
SD/SL

Mode of Action

**Nutriplant SD/SL aids root
hair growth**



NUTRIPLANT®
SD/SL

Mode of Action

**Nutriplant SD/SL supports
crop growth, especially
during stress conditions**



Irrigated Winter Wheat

Year	Grain Yields			
	Control (kg/ha)	Nutriplant SD (kg/ha)	Increase (kg/ha)	Increase (%)
2002	4685	4955	270	5.8
2003	6303	6768	465	7.4
2004	4679	4955	276	5.9
2006*	2157	2508	351	16.3

**Low yields are a result of extreme heat early in the season*



Nutriplant SD increased irrigated winter wheat yield by 5.8% to 16.3% over control

The largest increase occurred when plants were under abiotic stress conditions early in the season

Application rate: 1.5 ml/kg of seed

Source: IRF, USA, 2002, 2003, 2004, 2006

Dryland Winter Wheat

Year	Grain Yields			
	Control (kg/ha)	Nutriplant SD (kg/ha)	Increase (kg/ha)	Increase (%)
2004	1685	1915	230	13.6
2005	1058	1753	695	65.7
2006*	715	1160	445	62.2

**Low yields are a result of extreme heat early in the season*



Nutriplant SD increased dryland winter wheat yield by 13.6% to 65.7% over control

The largest increase occurred when plants were under abiotic stress conditions early in the season

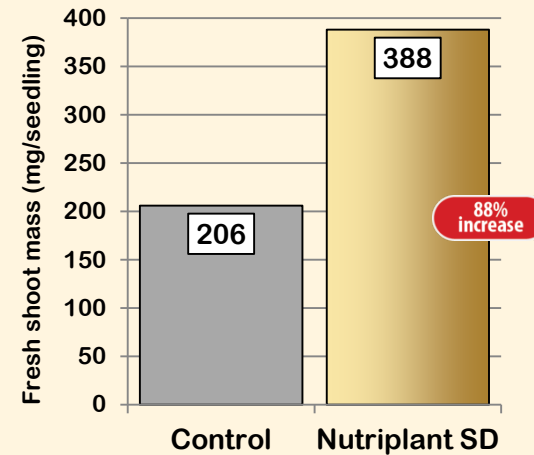
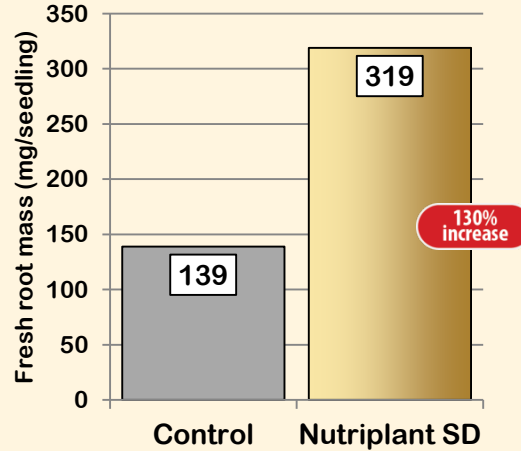
Application rate: 1.5 ml/kg of seed
Source: IRF, USA, 2004, 2005, 2006

Mode of Action

Nutriplant SD/SL helps overcome negative effects of pesticides applied to seeds



Nutriplant SD Overcomes Negative Effects of Poncho™ Insecticide

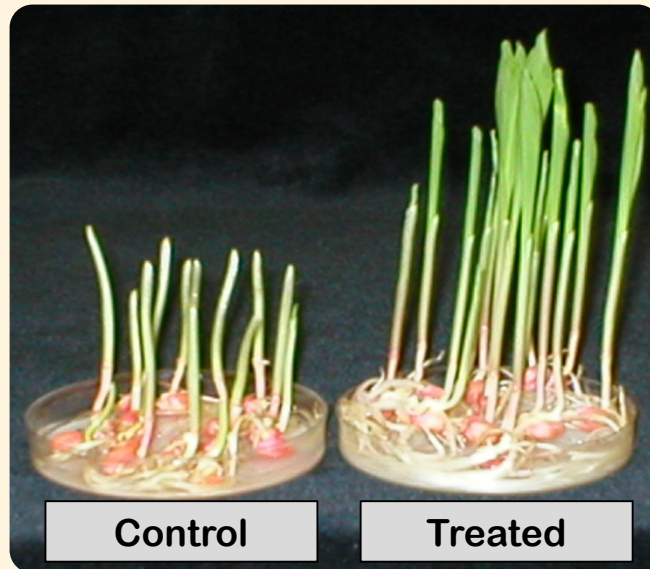


Nutriplant SD increased root mass by 130% and shoot mass by 88% in seeds treated with Poncho 250 insecticide

Poncho™ 250 contains 40% of the active ingredient clothianidin applied at 0.25mg/kernel

Source: Cytozyme Laboratories, Inc., USA

Nutriplant SD Helps Overcome Negative Effects of Poncho™ Insecticide



Treatment with Nutriplant SD restored the seedling vigor of seeds treated with Poncho 250 insecticide

Poncho™ 250 contains 40% of the active ingredient clothianidin applied at 0.25mg/kernel

Source: Cytozyme Laboratories Inc., USA

Summary

Nutriplant SD/SL provides essential nutrients, supports seedling vigor and root hair development, aids crops growth during stress conditions, and increases crop yield



NUTRIPLANT[®] AG

Product Description

A foliar nutritional supplement to enhance growth of agricultural crops

Available in 2 sizes:

- 2.5 gallon jug
- 30 gallon drum



Modes of Action

- ✓ Supports photosynthesis
- ✓ Aids uptake of nutrients through the root system
- ✓ High antioxidant activity to reduce the effects of free radicals
- ✓ Helps plants overcome negative effects of abiotic stress of heat, freezing and drought



**Nutriplant AG
supports
photosynthesis**



Increased Photosynthesis



Crop	Photosynthesis CO ₂ Fixation (% over control)	Yield (% over control)
Cotton	15%	22%
Rice	17%	16%
Tea	15%	8%

**Nutriplant AG increased photosynthesis
by an average of 16%**

Higher photosynthesis results in higher yields

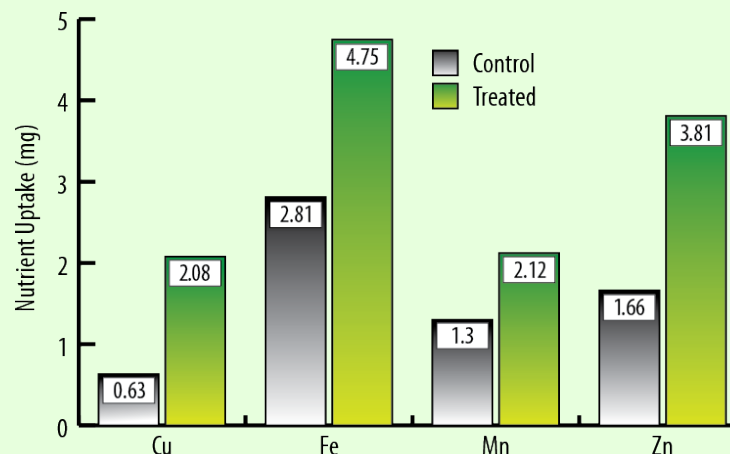
*Source: Cotton and rice data from the University of Arkansas, USA
Tea data from the UPASI Tea Research Foundation, India*

Nutriplant AG supports
the uptake of nutrients
through the roots



Nutriplant AG Increased Nutrient Uptake Through Roots

Plants treated with Nutriplant AG absorbed 230% more copper (Cu), 69% more iron (Fe), 63% more manganese (Mn) and 130% more zinc (Zn)



Better nutrient uptake improves plant growth and yield



Model plant: Corn

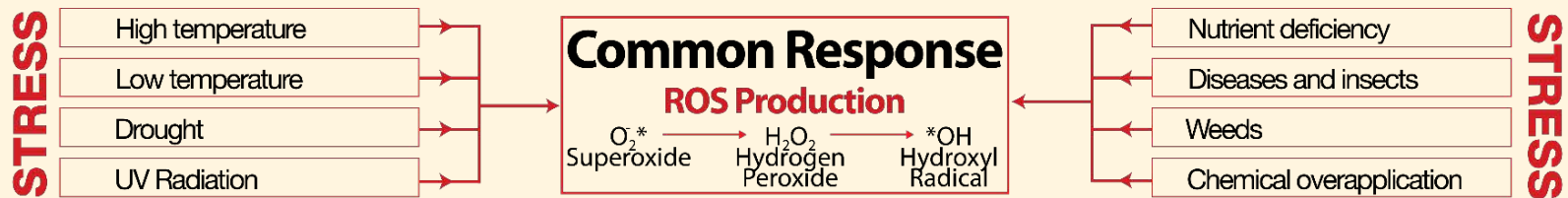
Source: Cytozyme Laboratories, Inc., USA

NUTRIPLANT[®] AG

Nutriplant AG supports plants during abiotic stress of heat, freezing and drought through elimination of reactive oxygen species in plant tissue, and improve yields



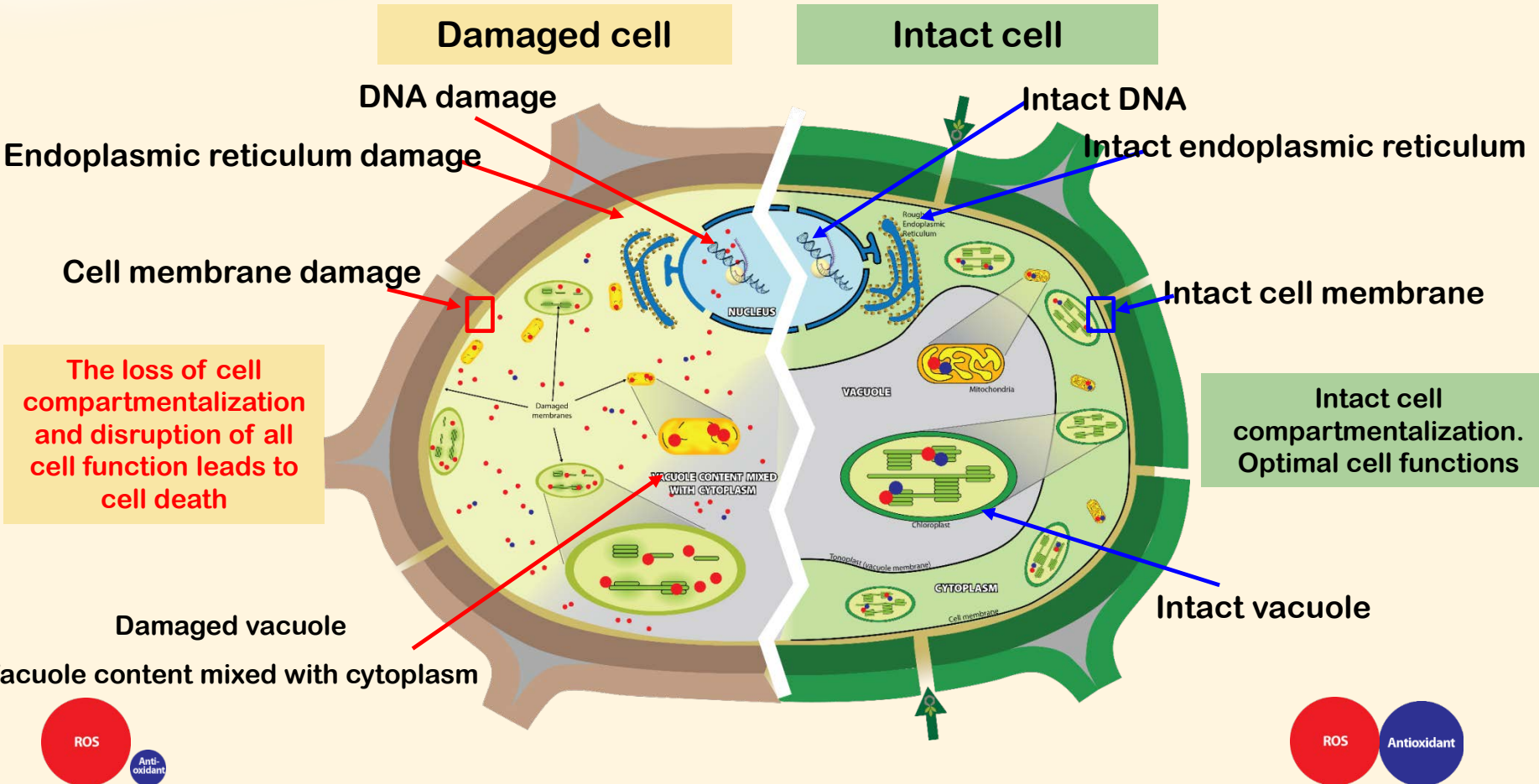
Plant Stress has Common Response



Under stress conditions, Reactive Oxygen Species (ROS) levels can increase dramatically. This may result in significant damage to cell structures.

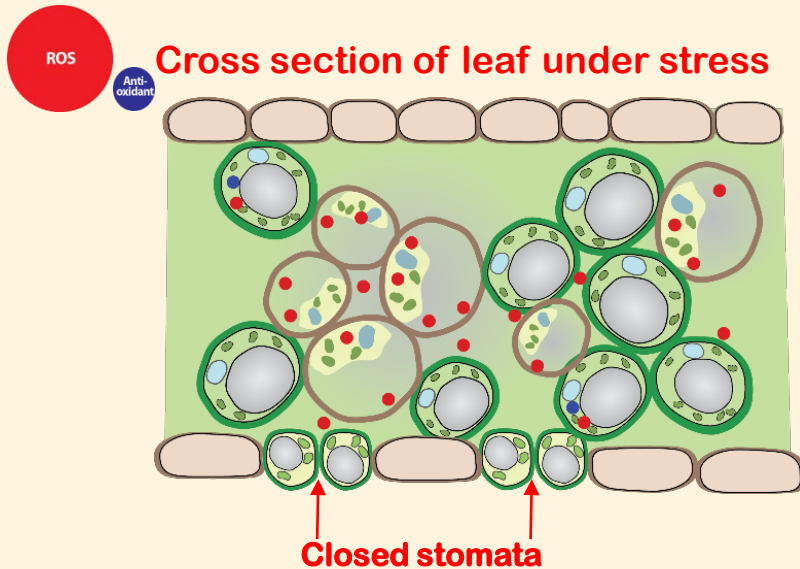
At cellular level

The whole cell

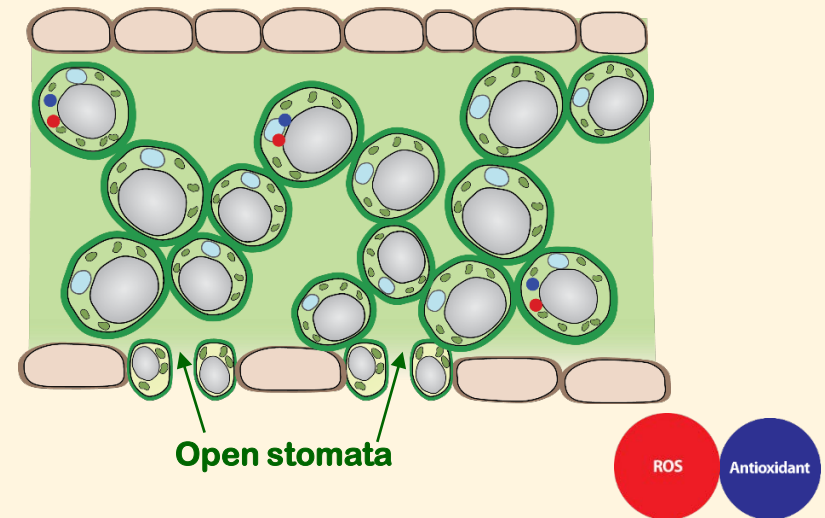


At leaf tissue level

Nutriplant AG helps plants during overproduction of ROS under stress



Cross section of Nutriplant-treated leaf under stress



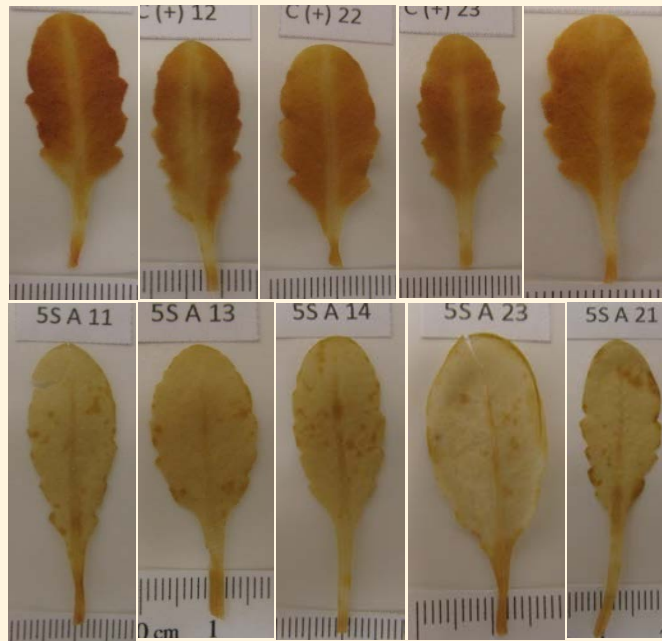
Cells damaged by excessive production of ROS lose their structure and functions and cannot support functions of the whole leaf leading to disruption of the whole plant physiology. If this disruption occurs during critical stages of plant growth and development like flowering or fruit set it may lead to flower or fruit abortions resulting in severe yield reduction.

Nutriplant products help to protect plants from overproduction of ROS keeping cells healthy and supporting functions of the whole leaf and the physiology of the whole plant.

At plant level

Nutriplant AG helped plants during overproduction of ROS under stress at 122⁰F (50⁰C) for 1 hour

Control



HYDROGEN PEROXIDE (ROS) stained brown with DAB solution.

Darker brown color indicates more ROS formation

Leaves treated with Nutriplant showed much less ROS production than untreated leaves

Treated

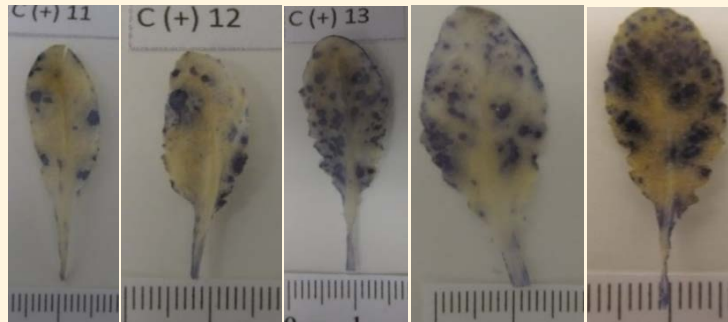
Model plant: *Arabidopsis thaliana*

Source: Cytozyme Laboratories, Inc., USA

At plant level

Nutriplant AG helped plants during overproduction of ROS under stress at 122⁰F (50⁰C) for 1 hour

Control



Treated



SUPEROXIDE RADICAL (ROS) stained blue with NBT solution.

Darker blue color indicates more ROS formation

Leaves treated with Nutriplant showed much less ROS production than untreated leaves

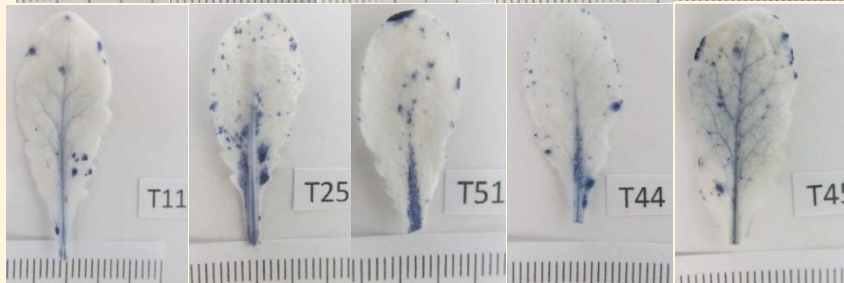
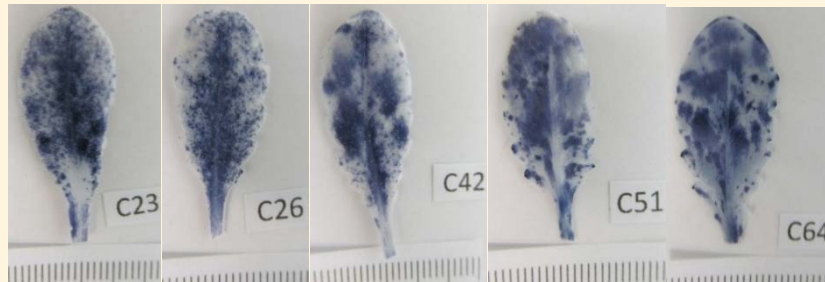
Model plant: Arabidopsis thaliana

Source: Cytozyme Laboratories, Inc., USA

At plant level

Nutriplant AG helped plants during overproduction of ROS under stress at 39⁰F (4⁰C) for 1 hour

Control



Treated

SUPEROXIDE RADICAL (ROS) stained blue with NBT solution.

Darker blue color indicates more ROS formation

Leaves treated with Nutriplant showed much less ROS production than untreated leaves

Model plant: *Arabidopsis thaliana*

Source: Cytozyme Laboratories, Inc., USA

At plant level

Nutriplant AG helped plants during overproduction of ROS under stress at 122⁰F (50⁰C) for 1 hour

Control



HYDROGEN PEROXIDE (ROS) stained brown with DAB solution.

Darker brown color indicates more ROS formation



Treated



Leaves treated with Nutriplant showed much less ROS production than untreated leaves

Model plant: *Glycine max*

Source: Cytozyme Laboratories, Inc., USA

At plant level

Nutriplant AG helped plants during overproduction of ROS under stress at 122⁰F (50⁰C) for 1 hour

Control



Treated

HYDROGEN PEROXIDE (ROS) stained brown with DAB solution.

Darker brown color indicates more ROS formation

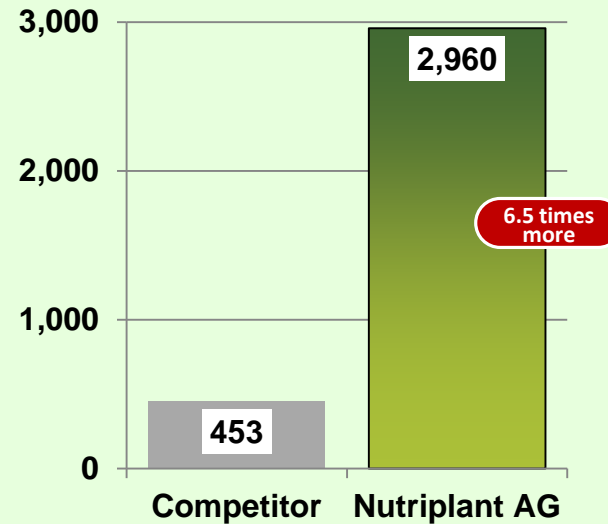
Leaves treated with Nutriplant showed much less ROS production than untreated leaves

Model plant: Zea mays

Source: Cytozyme Laboratories, Inc., USA

Nutriplant AG has High Antioxidant Activity

Nutriplant AG has 6.5 times higher antioxidant activity than competitor products



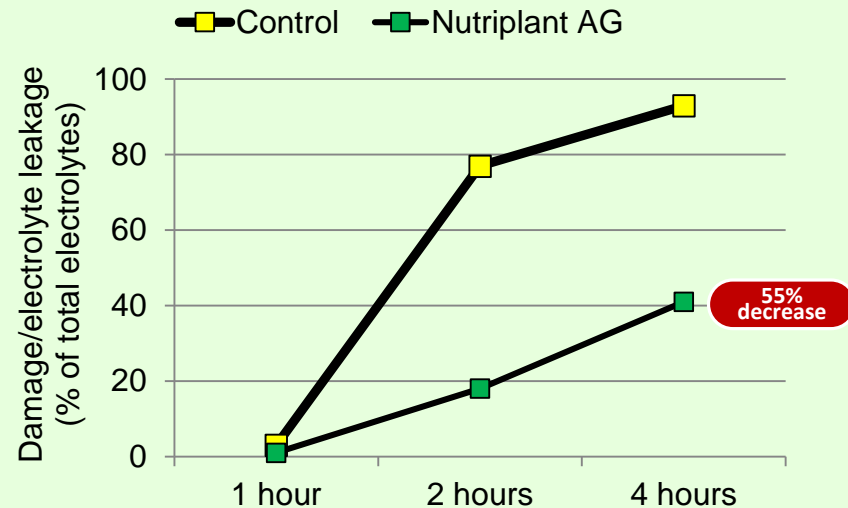
High antioxidant activity in Nutriplant AG helps plants to overcome damage caused by free radicals

Source: Cytozyme Laboratories, Inc., USA

Nutriplant AG Helps Plants Overcome Negative Effects of Drought Stress

Laboratory Results

Nutriplant AG reduced damage to leaves by 55%



Model plant: Tomato

Treatment: 2 applications followed by exposure to drought

Source: Cytozyme Laboratories, Inc., USA

Nutriplant AG Helps Plants Overcome Negative Effects of High Temperatures



Control

Treated

Nutriplant AG increased plant tolerance to high temperatures



Model plant: Tomato

Treatment: 2 applications, then exposed to 116° F (47°C) heat for 2 hours

Source: Cytozyme Laboratories, Inc., USA

Nutriplant AG Helps Plants Overcome Negative Effects of Low Temperatures

Nutriplant AG increased plant tolerance to cold



Control

Treated



Model plant: Tomato

Treatment: 2 applications, then exposed to 23° F (-5°C) for 2 hours

Source: Cytozyme Laboratories, Inc., USA

Summary

Through support of photosynthesis, nutrient uptake, antioxidant activity involved in plant response to stress Nutriplant AG increases crop yield and quality



NUTRIPLANT[®] Products

Field Performance

Nutriplant SD/SL and Nutriplant AG products support crop growth and development especially during stress resulting in increased crop yields and quality



NUTRIPLANT[®] Products

Use Nutriplant SD
to support seedling growth



Effect of Nutriplant SD on Corn Production

Nutriplant SD applied directly to the seeds

Year	Corn Yields			
	Control	Nutriplant SD	Difference	Difference
	(bu/acre)	(bu/acre)	(bu/acre)	(%)
1998	119.9	129.7	9.8	8.2
1999	198.1	205.0	6.9	3.5
2001	191.1	193.5	2.4	1.3
2002	216.2	221.4	5.2	2.4
2003	224.4	226.5	2.1	0.9
2004	152.4	159.8	7.4	4.9
Mean	183.7	189.3	5.6	3.5

The application of Nutriplant SD to corn seeds increased the yields on average by 3.5% (5.6 bu/acre)



Source: IRF, Yuma, Colorado, USA

Effect of Nutriplant SD on Irrigated Soybean Production

Nutriplant SD applied directly to the seeds

Year	Soybean Yields			
	Control	Nutriplant SD	Difference	Difference
	(bu/acre)	(bu/acre)	(bu/acre)	(%)
1999	52.1	54.7	2.6	5.0
2002	66.6	67.7	1.1	1.6
2003	63.0	66.9	3.9	6.2
2004	43.6	46.7	3.1	7.1
2014	61.5	65.0	3.5	5.7
2015	28.8	30.90	2.1	7.3
Mean	52.6	55.3	2.7	5.5

The application of Nutriplant SD to soybean seeds increased the yields on average by 5.5% (2.7 bu/acre)

Source: IRF, Yuma, Colorado, USA



Effect of Nutriplant SD on Irrigated Winter Wheat Production

Nutriplant SD applied directly to the seeds

Year	Irrigated Winter Wheat Yields			
	Control	Nutriplant SD	Difference	Difference
	(bu/acre)	(bu/acre)	(bu/acre)	(%)
2002	69.5	73.5	4.0	5.8
2003	93.5	100.4	6.9	7.4
2004	69.4	73.5	4.1	5.9
2006*	32.0	37.2	5.2	16.3

Nutriplant SD increased irrigated winter wheat by an average of 8.8%

*Crop exposed to abiotic stress of extreme heat

The highest yield increase of 16.3% were observed when crop was exposed to extreme heat conditions early in the season



Source: IRF, Yuma, Colorado, USA

Effect of Nutriplant SD on Dryland Winter Wheat Production

Nutriplant SD applied directly to the seeds

Year	Dryland Winter Wheat Yields			
	Control	Nutriplant SD	Difference	Difference
	(bu/acre)	(bu/acre)	(bu/acre)	(%)
2004	25.0	28.4	3.4	13.6
2005*	15.7	26.0	10.3	65.7
2006*	10.6	17.2	6.6	62.5

Nutriplant SD increased dryland winter wheat by an average of 43.7%

*Crop exposed to abiotic stress of low precipitation and extreme heat in 2005 and 2006

The highest yield increases of over 60% were observed when crop was exposed to extreme heat conditions early in the season



Source: IRF, Yuma, Colorado, USA

Economic Benefits of Nutriplant SD applied to Seeds

Crop	Crop Yield Increase/acre	Economic Benefit Net profit/acre	Yield Increase
Corn	5.6 bu/acre	\$18.09/acre	3.1%
Soybean	2.6 bu/acre	\$21.27/acre	5.4%
Pinto Beans	195 lb/acre	\$66.90/acre	10.3%
Sugar Beets	3.0 ton/acre	\$138.81/acre	14.0%
Sunflower	147 lb/acre	\$21.81/acre	7.3%
Winter Wheat Dryland	6.8 bu/acre	\$28.42/acre	39.6%
Winter Wheat Irrigated	4.6 bu/acre	\$18.44/acre	6.5%

Trials conducted 1998-2015

Calculations based on product and crop prices in 2016



NUTRIPLANT[®] Products

Application of Nutriplant SD

- Fill planter box half full of seed
- Apply half of the recommended dose
- Stir thoroughly
- Fill planter box with remaining seed
- Apply rest of Seed Treatment
- Stir again
- Plant seeds as usual



NUTRIPLANT[®] Products

**Use Nutriplant SL
to support seedling growth**



NUTRIPLANT[®] Products

Effect of Nutriplant SL on Irrigated Corn Production

Nutriplant SL applied directly to the seeds

Year	Corn Yields			
	Control	Nutriplant SL	Difference	Difference
	(bu/acre)	(bu/acre)	(bu/acre)	(%)
2005s	229	232	3	1.3
2006*s	189	205	16	8.5

Nutriplant SL applied in furrow

Year	Corn Yields			
	Control	Nutriplant SL	Difference	Difference
	(bu/acre)	(bu/acre)	(bu/acre)	(%)
2008*s	185	202	17	9.2
2010	204	204	0	0.0
2011*	191	204	13	6.8
2012*	195	215	20	10.3
2012*s	195	208	13	6.7

**Crop exposed to extreme abiotic stress of high winds and heat s - starter fertilizer*

Source: IRF, Yuma, Colorado, USA

Nutriplant SL was most effective during years when corn plants were exposed to abiotic stress.

Nutriplant SL increased corn yields by an average of 4.9% (9.5 bu/acre) applied to seeds and 6.6% (12.6 bu/acre) applied in-furrow



Effect of Nutriplant SL on Dryland Corn Production

Nutriplant SL applied directly to the seeds

Year	Corn Yields			
	Control	Nutriplant SL	Difference	Difference
	(bu/acre)	(bu/acre)	(bu/acre)	(%)
2014	111.9	119.2	7.3	6.5
2015	54.0	63.4	9.4	17.4

Nutriplant SL applied in-furrow

Year	Corn Yields			
	Control	Nutriplant SL	Difference	Difference
	(bu/acre)	(bu/acre)	(bu/acre)	(%)
2014	111.9	123.7	11.8	10.5
2015	66.2	75.5	9.3	14.0

Nutriplant SL increased corn yields by an average of 12.0% (8.35 bu/acre) applied to seeds and 12.3% (10.55 bu/acre) applied in-furrow

Without starter fertilizer

Source: IRF, Yuma, Colorado, USA



Effect of Nutriplant SL on Irrigated Soybean Production

Nutriplant SL applied directly to the seeds

Year	Soybean Yields			
	Control	Nutriplant SL	Difference	Difference
	(bu/acre)	(bu/acre)	(bu/acre)	(%)
2005	62.7	65.8	3.1	4.9
2006	72.5	73.0	0.5	0.7

Nutriplant SL applied in-furrow

Year	Soybean Yields			
	Control	Nutriplant SL	Difference	Difference
	(bu/acre)	(bu/acre)	(bu/acre)	(%)
2008*	57.4	61.8	4.4	7.7
2010*	39.6	49.5	9.9	25.0
2011*	71.0	77.7	6.7	9.4
2014	61.5	65.8	4.3	7.0

*Crop exposed to extreme abiotic stress of high winds and heat in 2008, 2010 and 2011

Source: IRF, Yuma, Colorado, USA

The in-furrow application of Nutriplant SL to soybeans is a more effective method than direct application to seeds

In a four year study, Nutriplant SL applied in-furrow increased soybeans yields by 12.3% (6.3 bu/acre)

The highest yield increases were observed when crop was exposed to stress conditions



Economic Benefits of Nutriplant SL applied to Seeds and In-furrow

Crop	Crop Yield Increase/acre	Economic Benefit Net profit/acre	Yield Increase
Corn	in-furrow 13 bu/acre	\$30.93/acre	7.5%
	on seed 9 bu/acre	\$30.06/acre	6.1%
Soybeans	in-furrow 6.3 bu/acre	\$49.73/acre	11.0%
	on seed 1.8 bu/acre	\$13.53/acre	2.7%
Sugar Beets	in-furrow 3.5 ton/acre	\$155.71/acre	11.3%
	on seed 5.47 ton/acre	\$251.51/acre	24.6%

Trials conducted 2005-2015 on three crops

Calculations based on product and crop prices in 2016



NUTRIPLANT[®] Products

Application of Nutriplant SL

- To seeds
- In-furrow
- As a drench for transplants
- In a drip irrigation on perennial/tree crops



NUTRIPLANT[®] Products

Use Nutriplant AG to
support crop at
critical growth stages



NUTRIPLANT[®] Products

Corn

Nutriplant SD or SL



Seed treatment supports seedling emergence and vigor

Nutriplant AG at V6-8



*Corn at V6-8
(6-8 leaves with collars)*

Optional: Nutriplant AG
two weeks before tassel



Corn prior to tasseling

Seedling

Nutriplant SD/SL aids emergence and vigor of the seedling

V6-V8 (6-8 leaves with collars)

Nutriplant AG provides support to plants when the number of kernel rows per ear at V6-V8 stage is determined

Prior to tasseling at V12 (12 leaves with collars)

Nutriplant AG provides support when the number of potential kernels on each ear and size of ear is being determined



Effect of Nutriplant AG on Irrigated Corn Production

Nutriplant AG applied at 6-8 leaf stage

Year	Corn Yields			
	Control	Nutriplant AG	Difference	Difference
	(bu/acre)	(bu/acre)	(bu/acre)	(%)
1999	198.1	211.4	13.3	6.7
2006	189.2	206.5	17.3	9.1
2008	175.1	184.0	8.9	5.1
2015	207.1	220.8	13.7	6.6

Nutriplant AG applied at 6-8 leaf stage increased yield of irrigated corn by an average of 6.9% (13.3 bu/acre)



Source: IRF, Yuma, Colorado, USA

NUTRIPLANT[®] Products

Soybean

Nutriplant SD or SL



Seed treatment supports seedling emergence and vigor

Nutriplant AG at V5-V6



Soybean at V5-V6 stage



Soybean at R1-R2 stage

Nutriplant AG at R3-R4



Soybean at R3 stage

Seedling

Nutriplant SD/SL aids emergence and vigor of the seedling

Vegetative (V5-V6) stages

Nutriplant AG supports vegetative growth of plants

Pod set (R3-R4) stages

Nutriplant AG provides support during development of pods and beans



Effect of Nutriplant AG on Soybean Production

Nutriplant AG applied at pre-bloom (V5-V6)

Year	Soybean Yields			
	Control	Nutriplant AG	Difference	Difference
	(bu/acre)	(bu/acre)	(bu/acre)	(%)
1999	52.1	53.1	1.0	1.9
2005	62.7	67.2	4.5	7.2
2008	54.0	58.8	4.8	8.9
2014	69.5	72.2	2.7	3.9
2015	40.0	44.9	4.9	12.3

Nutriplant AG applied at pre-bloom (V5-V6) increased soybean yield by an average of 6.8% (3.6 bu/acre)

Nutriplant AG applied at pod set (R3-R4)

Year	Soybean Yields			
	Control	Nutriplant AG	Difference	Difference
	(bu/acre)	(bu/acre)	(bu/acre)	(%)
2010	39.6	53.8	14.2	35.9
2011	71.0	74.4	3.4	4.8

Nutriplant AG applied at pod set (R3-R4) increased soybean yield by an average of 20.4% (8.8 bu/acre)



Source: IRF, Yuma, Colorado, USA

NUTRIPLANT[®] Products

Potato

Nutriplant SD or SL



Seed treatment supports seedling emergence and vigor

Nutriplant AG at stage II



*Growth stage II
Vegetative growth*

Nutriplant AG at stage III



*Growth stage III
Tuber initiation*

Optional: Nutriplant AG at stage IV



*Growth stage IV
Tuber bulking*

Seedling

Nutriplant SD/SL aids emergence and vigor of the seedling

Stage II, III and optional stage IV

Nutriplant AG provides support during vegetative stages and tuber growth



Critical Stages

Effect of Nutriplant AG on Potato Production

Three applications of Nutriplant AG on Russet Burbank potatoes

Potato Yields			
Control	Nutriplant AG	Difference	Difference
(lb/acre)	(lb/acre)	(lb/acre)	(%)
17,110 a*	23,250 b	6,140	35.9

* Numbers followed by different letters are statistically significant ($p < 0.05$)

Nutriplant AG applied three times during growing season increased potato yield by 35.9%

Two applications of Nutriplant AG on Yukon Gold potatoes

Potato Yields			
Control	Nutriplant AG	Difference	Difference
(lb/acre)	(lb/acre)	(lb/acre)	(%)
32,604	37,699	5,095	15.6

Nutriplant AG applied two times during growing season increased potato yield by 15.6%

Nutriplant AG applied three times during growing season gives better potato yield than applied two times



Source: IRF, Yuma, Colorado, USA

Effect of Nutriplant AG on Potato Tuber Size

Three applications of Nutriplant AG on Russet Burbank potatoes

Potato Tuber Size Distribution (%)		
Tuber Size	Control	Nutriplant AG
< 4 oz	83.3	76.9
> 4 oz	16.7	23.7

Nutriplant AG applied three times during growing season increased percent of large tubers by 41.9%

Two applications of Nutriplant AG on Yukon Gold potatoes

Potato Tuber Size Distribution (%)		
Tuber Size	Control	Nutriplant AG
< 8 oz	41	35
8-14 oz	46	50
> 14 oz	13	15

Nutriplant AG applied two times increased percent of large tubers 15.4% and medium tubers by 8.7%

Nutriplant AG increased the percent of large tubers



Source: IRF, Yuma, Colorado, USA

NUTRIPLANT[®] Products

Wheat

Nutriplant SD or SL



Seed treatment supports seedling emergence and vigor



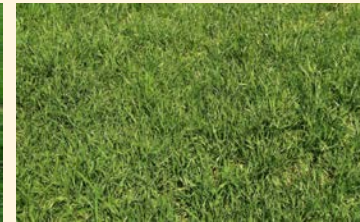
First spring growth

Nutriplant AG at green-up



Green-up (Feekes 4-5)

Optional: Nutriplant AG at panicle initiation



Jointing and panicle initiation (Feekes 6)

Seedling

Nutriplant SD/SL aids seedling emergence and vigor

Feekes 5 (green-up) and panicle initiation

Nutriplant AG provides support when the number of spikelets per spike (length of grain head) is determined

During panicle initiation

Nutriplant AG provides support for developing panicles



Effect of Nutriplant AG on Dryland Winter Wheat Production

Treatment	Wheat Yield*		
	Yield	Difference	
	(bu/acre)	(bu/acre)	(%)
Control	30.8	--	--
Nutriplant AG in spring at "green-up"	36.6	5.8	18.8
Nutriplant AG in spring at "green-up" and again at "boot" stage	37.6	6.8	22.1

* Grain yield adjusted to 12% moisture and 60 lb/bu grain density

Nutriplant AG applied to dryland winter wheat in spring at "green-up" produced 18.8% higher yield

Nutriplant AG applied twice at spring "green-up" and again at "boot" stage produced 22.1% higher yield



Source: IRF, Yuma, Colorado, USA

NUTRIPLANT[®] Products

Economic Benefits of Foliar applied Nutriplant AG at Critical Stages of Crop Development

Crop	Crop Yield Increase/acre	Economic Benefit Net profit/acre	Yield Increase
Corn	13.3 bu/acre	\$34.67/acre	6.9%
Pinto Beans	763 lb/acre	\$255.17/acre	38.0%
Potatoes			
2 applications	5,095 lb/acre	\$998.21/acre	15.6%
3 applications	6,140 lb/acre	\$1,196.82/acre	35.9%
Soybeans			
Pre-bloom	3.6 bu/acre	\$19.44/acre	6.5%
pod-set	8.8 bu/acre	\$64.68/acre	15.9%
Sugar Beets			
1 application	3.19 ton/acre	\$134.63/acre	15.6%
2 applications	5.72 ton/acre	\$239.51/acre	27.9%
Winter Wheat			
1 application	5.8 bu/acre	\$14.80/acre	18.8%
2 applications	6.8 bu/acre	\$7.52/acre	22.1%



Calculations based on product and crop prices in 2016

Application of Nutriplant AG

- During critical stages of crop development
- Before or at the beginning of stress conditions
- During high plant demands for nutrients
- To correct minor nutrient deficiencies



NUTRIPLANT[®] Products

For best results and
highest benefits use
Nutriplant SD/SL and
Nutriplant AG



NUTRIPLANT[®] Products

Effect of Nutriplant SL and AG on Corn Production

Nutriplant SL applied in furrow and AG at V6-V8 (6-8 leaves) stage

Without starter fertilizer

Year	Corn Yields			
	Control	Nutriplant SL and AG	Difference	Difference
	(bu/acre)	(bu/acre)	(bu/acre)	(%)
2013 no starter	187.88	201.84	13.96	7.4
2014 no starter	178.40	218.10	39.70	22.3
2015 no starter	193.75	204.20	10.45	5.4

Nutriplant SL and AG increased yields of irrigated corn without starter fertilizer by an average of 11.7% (21.4 bu/acre)

With starter fertilizer

Year	Corn Yields			
	Control	Nutriplant SL and AG	Difference	Difference
	(bu/acre)	(bu/acre)	(bu/acre)	(%)
2014 starter	196.90	227.70	30.80	15.6
2015 starter	203.84	208.21	4.37	2.1
2015 starter*	203.84	225.39	21.55	10.6

Nutriplant SL and AG increased yields of irrigated corn with starter fertilizer by an average of 9.4% (18.9 bu/acre)

*Nutriplant AG applied with glyphosate at V6 corn stage

Source: IRF, Yuma, Colorado, USA



Effect of Nutriplant SL and AG on Dryland Corn Production

Nutriplant SL applied in furrow and AG at V6-V8 (6-8 leaves) stage

Dryland corn

Year	Corn Yields			
	Control	Nutriplant SL and AG	Difference	Difference
	(bu/acre)	(bu/acre)	(bu/acre)	(%)
2013 no starter*	9.2	17.9	8.7	94.6
2015 no starter**	54.0	62.3	8.3	15.4

Nutriplant SL and AG increased yields of dryland corn by an average of 54.35% (8.45 bu/acre)

* Extreme drought conditions

** Crop exposed to hail damage

Source: IRF, Yuma, Colorado, USA



Effect of Nutriplant SD and AG on Soybean Production

Nutriplant SD applied to seeds and AG at pod set (R3-R4)

Irrigated soybeans

Year	Soybean Yields			
	Control	Nutriplant SD and AG	Difference	Difference
	(bu/acre)	(bu/acre)	(bu/acre)	(%)
2010	39.6	52.2	12.6	31.8
2011	71.0	77.0	6.0	8.5

Nutriplant SD and AG increased irrigated soybean yields
on average by 16.8% (9.3 bu/acre)



NUTRIPLANT[®] Products

Effect of Nutriplant SL and AG on Soybean Production

Nutriplant SL applied in furrow and AG at V6 and pod set (R3-R4)

Irrigated soybeans

Year	Soybean Yields			
	Control	Nutriplant SL and AG 2x	Difference	Difference
	(bu/acre)	(bu/acre)	(bu/acre)	(%)
2013	73.97	81.49	7.52	10.2
2013*	73.97	82.64	8.67	11.7
2014	66.03	69.64	3.61	5.5
2015	30.72	33.80	3.08	10.0
2015*	30.72	36.13	5.41	17.6

Nutriplant SL and AG 2x increased irrigated soybean yields on average by 11.0% (5.7 bu/acre)

Dryland soybeans

Year	Soybean Yields			
	Control	Nutriplant SL and AG 2x	Difference	Difference
	(bu/acre)	(bu/acre)	(bu/acre)	(%)
2013	16.35	24.00	7.65	46.8

Nutriplant SL and AG 2x increased dryland soybean yields by 46.8% (7.65 bu/acre)

*Nutriplant AG applied with glyphosate at V6 stage

Source: IRF, Yuma, Colorado, USA



Effect of Nutriplant SD and Nutriplant AG on Dryland Winter Wheat Production

Treatment	Wheat Yield*		
	(bu/acre)	Difference	
		(bu/acre)	(%)
Control	33.3	--	--
Nutriplant SD with Nutriplant AG in fall at "green-up"	38.8	5.5	16.5
Nutriplant SD with Nutriplant AG in spring at "green-up"	41.7	8.4	25.2
Nutriplant SD with Nutriplant AG in fall and again in spring at "green-up"	41.3	8.0	24.0
Nutriplant SD with Nutriplant AG at spring "green-up" and again at "boot" stage	40.8	7.5	22.5

Nutriplant SD applied to seeds and AG applied in spring at "green-up" was the most effective treatment resulting in 25.2% (8.4 bu/acre) yield increase

Second application of Nutriplant AG at "boot" stage did not produce additional yield increase of dryland winter wheat

Application of Nutriplant AG in the fall to dryland winter wheat is not as effective as spring application

*Grain yield adjusted to 12% moisture and 60 lb/bu grain density



Source: IRF, Yuma, Colorado, USA

Effect of Nutriplant SD and Nutriplant AG on Irrigated Winter Wheat Production

Treatment	Wheat Yield*		
	Yield	Difference	
	(bu/acre)	(bu/acre)	(%)
Control	90.3	--	--
Nutriplant SD at planting	93.1	2.8	3.1
Nutriplant SD at planting Nutriplant AG applied in the fall	94.2	3.9	4.3
Nutriplant SD at planting Nutriplant AG applied in the spring	100.8	10.5	11.6

Nutriplant SD applied to seeds and AG applied in spring at “green-up” produced the highest yield of 11.6% (10.5 bu/acre)

*Grain yield adjusted to 12% moisture and 60 lb/bu grain density



Source: IRF, Yuma, Colorado, USA

Economic Benefits of Nutriplant SD/SL and AG

Crop	Crop Yield Increase/acre	Economic Benefit Net profit/acre	Yield Increase
Corn SL in-furrow and AG 1x	18.0 bu/acre	\$42.10/acre	10.6%
Soybeans SD to seeds and AG 1x	9.3 bu/acre	\$18.64/acre	16.8%
Winter Wheat SD to seeds and AG 1x	9.5 bu/acre	\$28.88/acre	15.3%

Trials conducted 2010-2015

Calculations based on product and crop prices in 2016



Resources from Amway[®]

Go to: www.amway.com

Log in with username and password

Search: Nutriplant

- Product pictures and labels
- Downloadable sales literature
- Nutriplant Fliers for different crops
- Call **1-800-253-6500** and select the prompt for **Product Inquiry**

Resources from Cytozyme[®]

Go to: getproductsupport.net

- Fliers for Nutriplant SD/SL and for Nutriplant AG
- Fliers for different crops
- Field results
- Testimonials
- Labels and pictures of Nutriplant products
- Technical support contact



**Thank you for making
another successful year!**

