

Determine the effect of EP polymer on water retention in soilless media for fruiting vegetable transplant production in a greenhouse study

Trial ID: 25-US-POLYMER- Transplant-Pepper-CA

Protocol: 25-US-POLYMER-Transplant

Location: California, USA

Sponsor: EP Polymer, Japan

The information and data collected in this report are truthful and accurate and have been generated according to acceptable procedures and standards.

Signature:

Date: 12/26/2025

Parsa Tehranchian

Dr. Parsa Tehranchian
West Coast Bioefficacy Leader, USA
Global Lead – Early-Stage Screening

SynTech Research USA

EF polymer irrigation reduction trial- Fruiting vegetable transplant- Greenhouse- California-Fall 2025

Trial ID:25-US-POLYMER- Transplant-Pepper-CA
Protocol ID:25-US-POLYMER-Transplant Location:Reedley, CA Trial Year:2025
Study Director: Parsa Tehranchian Sponsor Contact:Lindsay Hutchinson

General Trial Information

Study Director:Parsa Tehranchian Title:West Coast Bioefficacy Leader

Discipline:SW soil and water
Status:R reviewed and reported

Initiation Date:Nov-12-2025
Completion Date:Dec-26-2025

Reliability:HIGH high quality

Trial Location

City:Reedley Country:USA United States
State/Prov.:California County:Fresno
Postal Code:93654

Latitude of LL Corner °:36.638723 N
Longitude of LL Corner °:-119.365635 W

Regulations

Conducted Under GLP:No
Conducted Under GEP:No

Objective: To determine the effect of EP polymer on water retention in soilless media for fruiting vegetable transplant production in a greenhouse study.

Materials and Methods: The experiment was conducted in a randomized complete design (CRD) with 4 treatments and 6 replications. Each replicate consisted of 4 sets of 6-cell transplanting inserts. A basic potting mix was purchased from ACE (ingredients = green waste compost, pumice, sphagnum peat moss, sand, dolomite lime). EP polymer at different rates was incorporated into the potting mix using a concrete mixer. Inserts were filled with 325 g of the potting mix after adding the EP polymer treatments. Subsequently, EP polymer-treated and untreated inserts were sub-irrigated with the 180 ppm Miracle-Gro Plant Food solution for 8 hours. Before recording weight and moisture %, all the inserts were drained for 10 minutes on greenhouse tables. The greenhouse was set at 90/75 °F (day/night) temperatures under a 12-h photoperiod provided by LED hydroponic lights. Pepper (Variety = *Capsicum annuum* = Banana pepper) seeds were planted the same day in each insert. To track the moisture level of each replicate, the weight and moisture % (Yinnik Tester Combo) were recorded at 1h, 3h, 6h, and 24h after the first irrigation, and 5, 7, 14, and 21 days after each irrigation event. All the inserts were irrigated once a week (60 ml per cell at each irrigation event). To measure N-P-K, pH, and EC levels, a 6-cell insert from each replicate was transferred from the greenhouse to the refrigerator on days 0, 7, 14, and 21 after seeding (DAS) and then sent to the laboratory. Plant height, number of leaves, chlorophyll content, and fresh shoot biomass were recorded 21 DAS. Data were subjected to ANOVA in ARM 2024, and means were separated by Student-Newman-Keuls at $\alpha = 0.05$. Means followed by the same letter or symbol do not significantly differ.

Results: There was a statistical difference among the treatments for 6-cell insert weight and moisture level during the experiment.

The difference between the EP polymer rates and UTC was obvious 8 hours after sub-irrigation of the inserts. The treated potting mix surface was distinctively swollen compared to the UTC (Figure 1), and turgid polymer chips were visible in the treated inserts. All EP polymer treatments showed statistically higher inset weight and moisture % compared with UTC during the experiment. However, the highest EP polymer rate (5% W/W) resulted in statistically and numerically the highest insert weight and moisture % compared to the EP polymer treatments. These results confirmed that the EP polymer-treated potting mix retained water for a longer period of time compared to UTC.

In contrast, pepper seedlings grown in untreated potting mix showed statistically higher fresh biomass, plant height, and growth stage than seedlings grown in potting mix treated with EP polymer (Figure 2). This was due to a delay in seedling emergence in EP polymer-treated plots, which correlated with moisture level. Additionally, seedlings grown in untreated potting mix had a more developed root system. Indeed, the majority of crops develop a more extensive and deeper root system when water is scarce compared to high water conditions. In drier soil, plants invest more energy in developing longer and more complex root and shoot growth to maximize water absorption. The goal of transplant production is to create a healthy root mass that sticks together and has sufficient root tips.

Based on the lab results, there was no significant difference in pH and EC level among the treatments during the trial. However, treatment differences were recorded for the N-P-K levels. Specifically, from 7 days after seeding, the level of nitrogen detected in UTC was statistically higher than in EP polymer-treated samples throughout the experiment. The highest rate of EP polymer (5% W/W) showed the lowest nitrogen level compared with the other treatments. Since all samples taken on 0 DAS had comparable nitrogen levels, the EP polymer had absorbed nitrogen from the fertilizer solution. It seems that the EP polymer chips trapped nitrogen elements. As the polymer rate increased, the nitrogen content decreased, which could be directly related to the reduction in seedling growth. Further laboratory studies are needed to prove this hypothesis. Furthermore, dose-response studies can help find the optimal amount of EP polymer required for transplant production.

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Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director:Parsa Tehranchian

Sponsor Contact:Lindsay Hutchinson

Contacts

Role:STYDIR study director

Study Director:Parsa Tehranchian

Organization:SynTech Research Group

Address 1:23721 Clayton Ave

Country:USA United States

City:Reedley

Title:West Coast Bioefficacy Leader

Phone No.:559-637-7070

E-mail:parsa.tehranchian@syntechresearch.com

State/Prov:CA

Postal Code:93654

Role:SPONSR sponsor

Sponsor:Lindsay Hutchinson

Organization:EF Polymer

Title:Research & BD

Mobile No.:8053779960

E-mail:lindsay.hutchinson@efpolymer.com

Crop Description

Crop 1:C CPSAN Capsicum annuum

Bell Pepper

BBCH Scale:BVS0

Variety:Banana pepper

Planting Date:Nov-12-2025

Rows per Plot:1

Row Spacing:2.25 IN

Spacing within Row:2.25 IN

Stage Scale:BBCH

Planting Rate:2

Planting Method:SEEDED

Planting Equipment:HA

S/POT seeded by hand

Site and Design

Treated Plot Width:7 IN

Treated Plot Length:4.5 IN

Treated Plot Area:31.5 IN2

Replications:6

Treatments:4

Plots:24

Distance between Blocks:0 IN

Distance between 'Plot' Experimental Units:0 IN

Site Type:GREENH greenhouse

Experimental Unit:1 POT pot/container

Study Design:RACOB� Randomized Complete Block (RCB)

Soil Description

Description Name:ACE potting soil

Application Description

	A
Date	Nov-12-2025
Start Time	8:30 AM
Stop Time	9:30 AM
Method	INCORP
Placement	BROSOI
Mixed/Prepared By	PT
Applied By	MS
Entry Date	Dec-10-2025
Air Temperature Start, Stop	81, 83 F
% Relative Humidity Start, Stop	45, -
Soil Moisture	DRY

Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale	CPSAN, BVSO

Application Equipment

	A
Equipment Name	Concrete mix

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Trial ID:25-US-POLYMER- Transplant-Pepper-CA

Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director:Persa Tehranchian

Sponsor Contact:Lindsay Hutchinson

Rating Date	Nov-12-2025	Nov-12-2025	Nov-12-2025	Nov-12-2025
Part Rated	PLOT, C	SOIL, C	PLOT, C	SOIL, C
Rating Type	WEIGHT	MOICON	WEIGHT	MOICON
Rating Unit	g	%	g	%
Sample Size	1 POT	1 POT	1 POT	1 POT
Collection Basis	1 PLANT	1 PLANT	1 PLANT	1 PLANT
Number of Subsamples	1	1	1	1
Crop ID Code	1, CPSAN	1, CPSAN	1, CPSAN	1, CPSAN
BBCH Scale	BVSO	BVSO	BVSO	BVSO
Crop Scientific Name	Capsicum annuum	Capsicum annuum	Capsicum annuum	Capsicum annuum
Crop Name	Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Variety	Banana pepper	Banana pepper	Banana pepper	Banana pepper
Days After First/Last Appl.	0, 0	0, 0	0, 0	0, 0
Treatment Appl. Interval	0 DA-A	0 DA-A	0 DA-A	0 DA-A
Planting Interval	0 DP-1	0 DP-1	0 DP-1	0 DP-1
Description	Weight 1 HAT	%Moisture 1 HAT	Weight 3 HAT	%Moisture 3 HAT
Trt Treatment	1	2	3	4
No. Name				
1 UNTREATED CONTROL	531.8d	34.60d	513.0d	35.65d
2 EF Polymer 1% w/w A	611.7c	53.93c	593.8c	48.43c
3 EF Polymer 3% w/w A	695.8b	59.63b	675.8b	58.40b
4 EF Polymer 5% w/w A	746.0a	71.23a	725.7a	73.53a
LSD P=.05	30.80	4.766	31.59	2.070
Standard Deviation	25.03	3.873	25.67	1.682
CV	3.87	7.06	4.09	3.11
Grand Mean	646.33	54.850	627.08	54.004
Levene's F^	9.219*	1.206	13.357*	0.285
Levene's Prob(F)	0.00*	0.333	0.00*	0.836
Rank X2	.	.	.	.
P(Rank X2)	.	.	.	.
Shapiro-Wilk^	0.9595	0.9501	0.978	0.9614
P(Shapiro-Wilk)^	0.429	0.2718	0.8556	0.4662
Skewness^	0.1784	0.7471	0.1122	0.5114
P(Skewness)^	0.7252	0.1497	0.8249	0.3183
Kurtosis^	-0.677	0.3005	-0.507	0.2306
P(Kurtosis)^	0.494	0.7605	0.6077	0.815
Replicate F	1.018	1.352	0.937	5.019
Replicate Prob(F)	0.4416	0.2964	0.4850	0.0067
Treatment F	85.252	93.612	79.561	543.521
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

^Calculated from residual.

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EF polymer irrigation reduction trial- Fruiting vegetable transplant- Greenhouse- California-Fall 2025

Trial ID:25-US-POLYMER- Transplant-Pepper-CA

Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director:Parsa Tehranchian

Sponsor Contact:Lindsay Hutchinson

Rating Date	Nov-12-2025	Nov-12-2025	Nov-13-2025	Nov-13-2025
Part Rated	PLOT, C	SOIL, C	PLOT, C	SOIL, C
Rating Type	WEIGHT	MOICON	WEIGHT	MOICON
Rating Unit	g	%	g	%
Sample Size	1 POT	1 POT	1 POT	1 POT
Collection Basis	1 PLANT	1 PLANT	1 PLANT	1 PLANT
Number of Subsamples	1	1	1	1
Crop ID Code	1, CPSAN	1, CPSAN	1, CPSAN	1, CPSAN
BBCH Scale	BVSO	BVSO	BVSO	BVSO
Crop Scientific Name	Capsicum annuum	Capsicum annuum	Capsicum annuum	Capsicum annuum
Crop Name	Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Variety	Banana pepper	Banana pepper	Banana pepper	Banana pepper
Days After First/Last Appl.	0, 0	0, 0	1, 1	1, 1
Treatment Appl. Interval	0 DA-A	0 DA-A	1 DA-A	1 DA-A
Planting Interval	0 DP-1	0 DP-1	1 DP-1	1 DP-1
Description	Weight 6 HAT	%Moisture 6 HAT	Weight 1 DAT	%Moisture 1 DAT
Trt Treatment	Rate	Appl		
No. Name	Rate Unit Code			
1 UNTREATED CONTROL	501.7d	37.42c	476.8d	26.27c
2 EF Polymer	1% w/w A	578.0c	55.57b	563.5c
3 EF Polymer	3% w/w A	664.3b	57.22b	623.0b
4 EF Polymer	5% w/w A	712.8a	75.67a	695.8a
LSD P=.05	31.38	9.363	30.24	5.588
Standard Deviation	25.50	7.609	24.58	4.541
CV	4.15	13.47	4.17	11.99
Grand Mean	614.21	56.467	589.79	37.879
Levene's F^	10.544*	3.623*	2.108	0.292
Levene's Prob(F)	0.00*	0.031*	0.131	0.831
Rank X2	.	.	.	.
P(Rank X2)	.	.	.	.
Shapiro-Wilk^	0.9763	0.9412	0.9697	0.927
P(Shapiro-Wilk)^	0.8195	0.1735	0.6605	0.0837
Skewness^	0.1163	-0.3305	0.3285	0.4685
P(Skewness)^	0.8186	0.5162	0.5188	0.3596
Kurtosis^	-0.3863	-0.8276	0.0103	-0.7868
P(Kurtosis)^	0.6954	0.4044	0.9916	0.4276
Replicate F	1.054	1.508	0.779	0.282
Replicate Prob(F)	0.4232	0.2459	0.5802	0.9157
Treatment F	80.650	25.321	85.430	50.999
Treatment Prob(F)	0.0001	0.0001	0.0001	0.0001

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^Calculated from residual.

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EF polymer irrigation reduction trial- Fruiting vegetable transplant- Greenhouse- California-Fall 2025

Trial ID:25-US-POLYMER- Transplant-Pepper-CA

Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director:Persa Tehranchian

Sponsor Contact:Lindsay Hutchinson

Rating Date	Nov-17-2025	Nov-17-2025	Nov-19-2025	Nov-19-2025
Part Rated	PLOT, C	SOIL, C	PLOT, C	SOIL, C
Rating Type	WEIGHT	MOICON	WEIGHT	MOICON
Rating Unit	g	%	g	%
Sample Size	1 POT	1 POT	1 POT	1 POT
Collection Basis	1 PLANT	1 PLANT	1 PLANT	1 PLANT
Number of Subsamples	1	1	1	1
Crop ID Code	1, CPSAN	1, CPSAN	1, CPSAN	1, CPSAN
BBCH Scale	BVSO	BVSO	BVSO	BVSO
Crop Scientific Name	Capsicum annuum	Capsicum annuum	Capsicum annuum	Capsicum annuum
Crop Name	Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Variety	Banana pepper	Banana pepper	Banana pepper	Banana pepper
Days After First/Last Appl.	5, 5	5, 5	7, 7	7, 7
Treatment Appl. Interval	5 DA-A	5 DA-A	7 DA-A	7 DA-A
Planting Interval	5 DP-1	5 DP-1	7 DP-1	7 DP-1
Description	Weight 5 DAT	%Moisture 5 DAT	Weight 7 DAT	%Moisture 7 DAT
Trt Treatment	9	10	11	12
No. Name				
1 UNTREATED CONTROL	565.3c	43.58b	453.7c	20.75b
2 EF Polymer 1% w/w A	623.8b	42.82b	531.5b	23.95b
3 EF Polymer 3% w/w A	655.2b	56.12a	537.0b	26.17b
4 EF Polymer 5% w/w A	742.8a	63.40a	650.0a	50.78a
LSD P=.05	33.93	10.320	29.24	6.663
Standard Deviation	27.57	8.386	23.76	5.415
CV	4.26	16.29	4.38	17.8
Grand Mean	646.79	51.479	543.04	30.413
Levene's F^	1.264	0.279	2.434	0.866
Levene's Prob(F)	0.314	0.84	0.095	0.475
Rank X2	.	.	.	.
P(Rank X2)	.	.	.	.
Shapiro-Wilk^	0.9738	0.9725	0.9748	0.8575*
P(Shapiro-Wilk)^	0.7609	0.7281	0.7847	0.003*
Skewness^	0.4611	0.1875	-0.3642	-1.6264*
P(Skewness)^	0.3672	0.7118	0.4748	0.0036*
Kurtosis^	0.2331	-0.5474	-0.0065	5.9801*
P(Kurtosis)^	0.813	0.5796	0.9948	0.0*
Replicate F	0.670	0.664	1.045	1.001
Replicate Prob(F)	0.6525	0.6561	0.4279	0.4501
Treatment F	43.303	8.560	69.404	38.753
Treatment Prob(F)	0.0001	0.0015	0.0001	0.0001

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^Calculated from residual.

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EF polymer irrigation reduction trial- Fruiting vegetable transplant- Greenhouse- California-Fall 2025

Trial ID:25-US-POLYMER- Transplant-Pepper-CA

Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director:Persa Tehranchian

Sponsor Contact:Lindsay Hutchinson

Rating Date	Nov-26-2025	Nov-26-2025	Dec-3-2025	Dec-3-2025
Part Rated	PLANT, C	SOIL, C	PLANT, C	SOIL, C
Rating Type	WEIGHT	MOICON	WEIGHT	MOICON
Rating Unit	g	%	g	%
Sample Size	1 POT	1 POT	1 POT	1 POT
Collection Basis	1 PLANT	1 PLANT	1 PLANT	1 PLANT
Number of Subsamples	1	1	1	1
Crop ID Code	1, CPSAN	1, CPSAN	1, CPSAN	1, CPSAN
BBCH Scale	BVSO	BVSO	BVSO	BVSO
Crop Scientific Name	Capsicum annuum	Capsicum annuum	Capsicum annuum	Capsicum annuum
Crop Name	Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Variety	Banana pepper	Banana pepper	Banana pepper	Banana pepper
Days After First/Last Appl.	14, 14	14, 14	21, 21	21, 21
Treatment Appl. Interval	14 DA-A	14 DA-A	21 DA-A	21 DA-A
Planting Interval	14 DP-1	14 DP-1	21 DP-1	21 DP-1
Description	Weight 14 DAT	%Moisture 14 DAT	Weight 21 DAT	%Moisture 21 DAT
Trt Treatment	13	14	15	16
No. Name				
1 UNTREATED CONTROL	565.5b	33.72c	396.62b	33.55d
2 EF Polymer 1% w/w A	594.0ab	44.48b	499.33ab	44.70c
3 EF Polymer 3% w/w A	619.7a	54.28a	483.17ab	53.17b
4 EF Polymer 5% w/w A	604.8a	53.88a	551.67a	56.45a
LSD P=.05	28.62	4.600	102.957	2.419
Standard Deviation	23.25	3.738	83.664	1.966
CV	3.9	8.02	17.33	4.19
Grand Mean	596.00	46.592	482.696	46.967
Levene's F^	2.118	0.487	0.266	0.236
Levene's Prob(F)	0.13	0.695	0.849	0.87
Rank X2	.	.	.	.
P(Rank X2)	.	.	.	.
Shapiro-Wilk^	0.9764	0.9398	0.7569*	0.9391
P(Shapiro-Wilk)^	0.8213	0.1614	0.0*	0.1557
Skewness^	-0.2521	0.4257	-2.1226*	-0.0823
P(Skewness)^	0.6197	0.4045	0.0003*	0.871
Kurtosis^	-0.2719	-0.8505	8.1347*	-1.2249
P(Kurtosis)^	0.7827	0.3916	0.0*	0.2212
Replicate F	1.179	0.256	1.348	1.191
Replicate Prob(F)	0.3648	0.9304	0.2979	0.3596
Treatment F	5.815	40.440	3.555	162.249
Treatment Prob(F)	0.0076	0.0001	0.0401	0.0001

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^Calculated from residual.

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EF polymer irrigation reduction trial- Fruiting vegetable transplant- Greenhouse- California-Fall 2025

Trial ID:25-US-POLYMER- Transplant-Pepper-CA

Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director:Persa Tehranchian

Sponsor Contact:Lindsay Hutchinson

Rating Date	Dec-3-2025	Dec-3-2025	Dec-3-2025	Dec-3-2025
Part Rated	SHOOT, C	PLANT, C	LEAF, C	PLANT, C
Rating Type	BIOMAS	HEIGHT	COPLPA	CHLCON
Rating Unit	g	IN	NUMBER	mmol/m2s
Sample Size	1 PLANT	1 PLANT	1 PLANT	1 READNG
Collection Basis	1 PLANT	1 PLANT	1 PLANT	1 PLANT
Number of Subsamples	6	6	6	3
Crop ID Code	1, CPSAN	1, CPSAN	1, CPSAN	1, CPSAN
BBCH Scale	BVSO	BVSO	BVSO	BVSO
Crop Scientific Name	Capsicum annuum	Capsicum annuum	Capsicum annuum	Capsicum annuum
Crop Name	Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Variety	Banana pepper	Banana pepper	Banana pepper	Banana pepper
Days After First/Last Appl.	21, 21	21, 21	21, 21	21, 21
Treatment Appl. Interval	21 DA-A	21 DA-A	21 DA-A	21 DA-A
Planting Interval	21 DP-1	21 DP-1	21 DP-1	21 DP-1
Description	Fresh shoot bio>	Height 21 DAT	# of leaf 21 DAT	Chlorophyll 21 >
Trt Treatment	Rate	Rate	Rate	Rate
No. Name	Unit Code	Unit Code	Unit Code	Unit Code
1 UNTREATED CONTROL	17	18	19	20
2 EF Polymer	0.5498a	2.479a	2.40a	11.29a
3 EF Polymer	0.3929ab	1.646b	2.06b	11.20a
4 EF Polymer	0.1737bc	1.479c	1.97b	10.97a
4 EF Polymer	0.1342c	1.333d	1.97b	10.61a
LSD P=.05	0.22379	0.0714	0.096	0.835
Standard Deviation	0.18185	0.0581	0.078	0.679
CV	58.16	3.35	3.71	6.16
Grand Mean	0.31266	1.7344	2.101	11.018
Levene's F^	0.196	2.11	1.309	1.506
Levene's Prob(F)	0.898	0.131	0.299	0.244
Rank X2	.	.	.	.
P(Rank X2)	.	.	.	.
Shapiro-Wilk^	0.8185*	0.9554	0.9404	0.946
P(Shapiro-Wilk)^	0.0006*	0.3539	0.1669	0.2214
Skewness^	1.7295*	-0.5991	-0.2934	0.6018
P(Skewness)^	0.0022*	0.2442	0.564	0.2421
Kurtosis^	3.9154*	1.3847	0.2493	-0.1968
P(Kurtosis)^	0.0005*	0.1686	0.8003	0.8417
Replicate F	1.057	0.966	0.848	0.824
Replicate Prob(F)	0.4219	0.4693	0.5373	0.5517
Treatment F	6.885	467.833	41.571	1.224
Treatment Prob(F)	0.0039	0.0001	0.0001	0.3354

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^Calculated from residual.

SynTech Research USA

EF polymer irrigation reduction trial- Fruiting vegetable transplant- Greenhouse- California-Fall 2025

Trial ID:25-US-POLYMER- Transplant-Pepper-CA

Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director:Persa Tehranchian

Sponsor Contact:Lindsay Hutchinson

Rating Date	Dec-9-2025	Dec-9-2025	Dec-9-2025	Dec-9-2025
Part Rated	SOIL, C	SOIL, C	SOIL, C	SOIL, C
Rating Type	CONK	CONNO3	CONNUT	CONNUT
Rating Unit	mg/L	mg/L	mg/L	%
Sample Size	1 SAMPLE	1 SAMPLE	1 SAMPLE	1 SAMPLE
Collection Basis	1 PLANT	1 PLANT	1 PLANT	1 PLANT
Number of Subsamples	1	1	1	1
Crop ID Code	1, CPSAN	1, CPSAN	1, CPSAN	1, CPSAN
BBCH Scale	BVSO	BVSO	BVSO	BVSO
Crop Scientific Name	Capsicum annuum	Capsicum annuum	Capsicum annuum	Capsicum annuum
Crop Name	Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Variety	Banana pepper	Banana pepper	Banana pepper	Banana pepper
Days After First/Last Appl.	27, 27	27, 27	27, 27	27, 27
Treatment Appl. Interval	27 DA-A	27 DA-A	27 DA-A	27 DA-A
Planting Interval	27 DP-1	27 DP-1	27 DP-1	27 DP-1
Description	K - 0 DAT	NO3-N - 0 DAT	PO4-P - 0 DAT	SP - 0 DAT
Trt No.	21	22	23	24
Treatment Name	UNTREATED CONTROL			
Rate	404.8a	9.92b	31.45b	196.7d
Unit	1% w/w	11.79a	39.30a	228.3c
Appl Code	A	8.20bc	33.78b	320.0a
	380.3a	7.37c	34.08ab	306.7b
LSD P=.05	28.77	1.729	5.295	11.36
Standard Deviation	23.38	1.396	4.303	9.23
CV	5.93	14.98	12.42	3.51
Grand Mean	394.29	9.318	34.654	262.92
Levene's F^	0.853	1.335	0.567	0.077
Levene's Prob(F)	0.481	0.293	0.643	0.972
Rank X2	.	.	.	.
P(Rank X2)	.	.	.	.
Shapiro-Wilk^	0.9591	0.9122*	0.9655	0.9286
P(Shapiro-Wilk)^	0.42	0.0455*	0.5582	0.0907
Skewness^	-0.7445	-0.8914	0.48	-0.8577
P(Skewness)^	0.151	0.0958	0.3482	0.1005
Kurtosis^	0.3956	1.9516	0.0424	0.7829
P(Kurtosis)^	0.6885	0.0625	0.9656	0.4298
Replicate F	0.475	0.580	0.661	0.635
Replicate Prob(F)	0.7894	0.7152	0.6584	0.6763
Treatment F	2.610	11.815	3.557	252.296
Treatment Prob(F)	0.0898	0.0004	0.0400	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

^Calculated from residual.

SynTech Research USA

EF polymer irrigation reduction trial- Fruiting vegetable transplant- Greenhouse- California-Fall 2025

Trial ID:25-US-POLYMER- Transplant-Pepper-CA

Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director:Persa Tehranchian

Sponsor Contact:Lindsay Hutchinson

Rating Date	Dec-9-2025	Dec-9-2025	Dec-9-2025	Dec-9-2025
Part Rated	SOIL, C	SOIL, C	SOIL, C	SOIL, C
Rating Type	PH	ELCOND	CONK	CONNO3
Rating Unit	PH	DS/M	mg/L	mg/L
Sample Size	1 SAMPLE	1 SAMPLE	1 SAMPLE	1 SAMPLE
Collection Basis	1 PLANT	1 PLANT	1 PLANT	1 PLANT
Number of Subsamples	1	1	1	1
Crop ID Code	1, CPSAN	1, CPSAN	1, CPSAN	1, CPSAN
BBCH Scale	BVSO	BVSO	BVSO	BVSO
Crop Scientific Name	Capsicum annuum	Capsicum annuum	Capsicum annuum	Capsicum annuum
Crop Name	Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Variety	Banana pepper	Banana pepper	Banana pepper	Banana pepper
Days After First/Last Appl.	27, 27	27, 27	27, 27	27, 27
Treatment Appl. Interval	27 DA-A	27 DA-A	27 DA-A	27 DA-A
Planting Interval	27 DP-1	27 DP-1	27 DP-1	27 DP-1
Description	pH - 0 DAT	EC - 0 DAT	K - 7 DAT	NO3-N - 7 DAT
Trt No.	25	26	27	28
Treatment Name	UNTREATED CONTROL			
Rate	6.52a	2.177a	388.2c	9.47a
Unit	1% w/w	2.063a	417.8bc	3.87b
Appl Code	A	1.903a	504.3b	2.07bc
	6.52a	2.157a	605.3a	0.30c
LSD P=.05	0.058	0.2572	98.13	2.349
Standard Deviation	0.047	0.2090	79.74	1.908
CV	0.72	10.07	16.65	48.62
Grand Mean	6.529	2.0750	478.92	3.925
Levene's F^	1.584	0.631	1.323	1.566
Levene's Prob(F)	0.225	0.603	0.295	0.229
Rank X2	.	.	.	.
P(Rank X2)	.	.	.	.
Shapiro-Wilk^	0.9695	0.9715	0.9258	0.9547
P(Shapiro-Wilk)^	0.6544	0.7036	0.0785	0.3412
Skewness^	0.1095	0.1948	0.9539	0.7465
P(Skewness)^	0.829	0.7012	0.0696	0.15
Kurtosis^	0.0295	-0.7255	1.9596	1.4047
P(Kurtosis)^	0.9761	0.464	0.0561	0.1628
Replicate F	2.924	0.268	0.389	0.623
Replicate Prob(F)	0.0488	0.9235	0.8486	0.6848
Treatment F	0.696	2.134	8.994	25.976
Treatment Prob(F)	0.5686	0.1387	0.0012	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

^Calculated from residual.

SynTech Research USA

EF polymer irrigation reduction trial- Fruiting vegetable transplant- Greenhouse- California-Fall 2025

Trial ID:25-US-POLYMER- Transplant-Pepper-CA

Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director:Persa Tehranchian

Sponsor Contact:Lindsay Hutchinson

Rating Date	Dec-9-2025	Dec-9-2025	Dec-9-2025	Dec-9-2025
Part Rated	SOIL, C	SOIL, C	SOIL, C	SOIL, C
Rating Type	CONNUT	CONNUT	PH	ELCOND
Rating Unit	mg/L	%	PH	DS/M
Sample Size	1 SAMPLE	1 SAMPLE	1 SAMPLE	1 SAMPLE
Collection Basis	1 PLANT	1 PLANT	1 PLANT	1 PLANT
Number of Subsamples	1	1	1	1
Crop ID Code	1, CPSAN	1, CPSAN	1, CPSAN	1, CPSAN
BBCH Scale	BVSO	BVSO	BVSO	BVSO
Crop Scientific Name	Capsicum annuum	Capsicum annuum	Capsicum annuum	Capsicum annuum
Crop Name	Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Variety	Banana pepper	Banana pepper	Banana pepper	Banana pepper
Days After First/Last Appl.	27, 27	27, 27	27, 27	27, 27
Treatment Appl. Interval	27 DA-A	27 DA-A	27 DA-A	27 DA-A
Planting Interval	27 DP-1	27 DP-1	27 DP-1	27 DP-1
Description	PO4-P - 7 DAT	SP - 7 DAT	pH - 7 DAT	EC - 7 DAT
Trt Treatment	29	30	31	32
No. Name				
1 UNTREATED CONTROL	29.47a	200.0b	6.60b	2.133a
2 EF Polymer 1% w/w A	28.82a	215.0a	6.70a	2.238a
3 EF Polymer 3% w/w A	24.10b	218.3a	6.75a	2.260a
4 EF Polymer 5% w/w A	25.02b	216.7a	6.78a	2.218a
LSD P=.05	2.925	13.16	0.087	0.3042
Standard Deviation	2.377	10.70	0.071	0.2472
CV	8.85	5.03	1.05	11.17
Grand Mean	26.850	212.50	6.708	2.2125
Levene's F^	0.244	3.202*	0.613	0.355
Levene's Prob(F)	0.864	0.045*	0.614	0.786
Rank X2	.	.	.	.
P(Rank X2)	.	.	.	.
Shapiro-Wilk^	0.9896	0.9793	0.9329	0.9224
P(Shapiro-Wilk)^	0.9953	0.8821	0.1131	0.066
Skewness^	0.115	-0.2391	0.7429	1.0714*
P(Skewness)^	0.8205	0.6379	0.1519	0.0434*
Kurtosis^	0.3109	-0.018	0.52	1.8771
P(Kurtosis)^	0.7525	0.9854	0.5986	0.0664
Replicate F	2.020	1.136	1.133	0.765
Replicate Prob(F)	0.1338	0.3840	0.3852	0.5888
Treatment F	7.661	3.738	7.667	0.302
Treatment Prob(F)	0.0025	0.0346	0.0025	0.8235

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

^Calculated from residual.

SynTech Research USA

EF polymer irrigation reduction trial- Fruiting vegetable transplant- Greenhouse- California-Fall 2025

Trial ID:25-US-POLYMER- Transplant-Pepper-CA

Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director:Persa Tehranchian

Sponsor Contact:Lindsay Hutchinson

Rating Date	Dec-9-2025	Dec-9-2025	Dec-9-2025	Dec-9-2025
Part Rated	SOIL, C	SOIL, C	SOIL, C	SOIL, C
Rating Type	CONK	CONNO3	CONNUT	CONNUT
Rating Unit	mg/L	mg/L	mg/L	%
Sample Size	1 SAMPLE	1 SAMPLE	1 SAMPLE	1 SAMPLE
Collection Basis	1 PLANT	1 PLANT	1 PLANT	1 PLANT
Number of Subsamples	1	1	1	1
Crop ID Code	1, CPSAN	1, CPSAN	1, CPSAN	1, CPSAN
BBCH Scale	BVSO	BVSO	BVSO	BVSO
Crop Scientific Name	Capsicum annuum	Capsicum annuum	Capsicum annuum	Capsicum annuum
Crop Name	Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Variety	Banana pepper	Banana pepper	Banana pepper	Banana pepper
Days After First/Last Appl.	27, 27	27, 27	27, 27	27, 27
Treatment Appl. Interval	27 DA-A	27 DA-A	27 DA-A	27 DA-A
Planting Interval	27 DP-1	27 DP-1	27 DP-1	27 DP-1
Description	K - 14 DAT	NO3-N - 14 DAT	PO4-P - 14 DAT	SP - 14 DAT
Trt No.	33	34	35	36
Treatment Name	UNTREATED CONTROL			
Rate				
Unit				
Appl Code				
1	324.3c	21.92a	23.17b	210.0b
2	356.2c	9.25b	25.35a	208.3b
3	456.8b	0.33c	26.80a	225.0ab
4	540.0a	0.82c	24.95ab	235.0a
LSD P=.05	61.21	3.182	1.854	20.50
Standard Deviation	49.74	2.586	1.507	16.66
CV	11.86	32.01	6.01	7.59
Grand Mean	419.33	8.079	25.067	219.58
Levene's F^	0.568	4.325*	0.311	0.102
Levene's Prob(F)	0.642	0.017*	0.817	0.958
Rank X2	.	.	.	.
P(Rank X2)	.	.	.	.
Shapiro-Wilk^	0.9418	0.9753	0.9792	0.9741
P(Shapiro-Wilk)^	0.1788	0.7954	0.8808	0.7677
Skewness^	0.819	-0.1857	0.4251	0.0836
P(Skewness)^	0.1159	0.7145	0.4051	0.869
Kurtosis^	0.9146	-0.1235	0.6156	0.7909
P(Kurtosis)^	0.3576	0.9002	0.5336	0.4252
Replicate F	1.115	0.629	2.779	0.303
Replicate Prob(F)	0.3939	0.6804	0.0570	0.9033
Treatment F	23.425	91.395	5.911	3.498
Treatment Prob(F)	0.0001	0.0001	0.0072	0.0420

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

^Calculated from residual.

SynTech Research USA

EF polymer irrigation reduction trial- Fruiting vegetable transplant- Greenhouse- California-Fall 2025

Trial ID:25-US-POLYMER- Transplant-Pepper-CA

Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director:Persa Tehranchian

Sponsor Contact:Lindsay Hutchinson

Rating Date	Dec-9-2025	Dec-9-2025	Dec-9-2025	Dec-9-2025
Part Rated	SOIL, C	SOIL, C	SOIL, C	SOIL, C
Rating Type	PH	ELCOND	CONK	CONNO3
Rating Unit	PH	DS/M	mg/L	mg/L
Sample Size	1 SAMPLE	1 SAMPLE	1 SAMPLE	1 SAMPLE
Collection Basis	1 PLANT	1 PLANT	1 PLANT	1 PLANT
Number of Subsamples	1	1	1	1
Crop ID Code	1, CPSAN	1, CPSAN	1, CPSAN	1, CPSAN
BBCH Scale	BVSO	BVSO	BVSO	BVSO
Crop Scientific Name	Capsicum annuum	Capsicum annuum	Capsicum annuum	Capsicum annuum
Crop Name	Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Variety	Banana pepper	Banana pepper	Banana pepper	Banana pepper
Days After First/Last Appl.	27, 27	27, 27	27, 27	27, 27
Treatment Appl. Interval	27 DA-A	27 DA-A	27 DA-A	27 DA-A
Planting Interval	27 DP-1	27 DP-1	27 DP-1	27 DP-1
Description	pH - 14 DAT	EC - 14 DAT	K - 21 DAT	NO3-N - 21 DAT
Trt Treatment	37	38	39	40
No. Name				
1 UNTREATED CONTROL	6.73d	2.112a	334.5c	26.17a
2 EF Polymer 1% w/w A	6.93c	1.973a	345.8c	14.37b
3 EF Polymer 3% w/w A	7.07b	2.122a	441.7b	5.87c
4 EF Polymer 5% w/w A	7.15a	2.312a	542.3a	0.92d
LSD P=.05	0.066	0.2759	83.24	3.564
Standard Deviation	0.053	0.2242	67.64	2.896
CV	0.77	10.53	16.26	24.48
Grand Mean	6.971	2.1296	416.08	11.829
Levene's F^	1.437	0.268	2.992	2.004
Levene's Prob(F)	0.262	0.848	0.055	0.146
Rank X2	.	.	.	.
P(Rank X2)	.	.	.	.
Shapiro-Wilk^	0.9471	0.9863	0.9578	0.9832
P(Shapiro-Wilk)^	0.234	0.9785	0.3957	0.9468
Skewness^	0.5149	0.3507	-0.5006	0.2945
P(Skewness)^	0.315	0.4912	0.3284	0.5625
Kurtosis^	-0.5016	0.4722	-0.1562	0.1313
P(Kurtosis)^	0.6115	0.6325	0.874	0.894
Replicate F	0.845	0.796	1.751	1.249
Replicate Prob(F)	0.5390	0.5691	0.1837	0.3356
Treatment F	69.272	2.306	12.320	87.412
Treatment Prob(F)	0.0001	0.1182	0.0003	0.0001

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

^Calculated from residual.

SynTech Research USA

EF polymer irrigation reduction trial- Fruiting vegetable transplant- Greenhouse- California-Fall 2025

Trial ID:25-US-POLYMER- Transplant-Pepper-CA

Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director: Parsa Tehranchian

Sponsor Contact: Lindsay Hutchinson

Rating Date	Dec-9-2025	Dec-9-2025	Dec-9-2025	Dec-9-2025
Part Rated	SOIL, C	SOIL, C	SOIL, C	SOIL, C
Rating Type	CONNUT	CONNUT	PH	ELCOND
Rating Unit	mg/L	%	PH	DS/M
Sample Size	1 SAMPLE	1 SAMPLE	1 SAMPLE	1 SAMPLE
Collection Basis	1 PLANT	1 PLANT	1 PLANT	1 PLANT
Number of Subsamples	1	1	1	1
Crop ID Code	1, CPSAN	1, CPSAN	1, CPSAN	1, CPSAN
BBCH Scale	BVSO	BVSO	BVSO	BVSO
Crop Scientific Name	Capsicum annuum	Capsicum annuum	Capsicum annuum	Capsicum annuum
Crop Name	Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Variety	Banana pepper	Banana pepper	Banana pepper	Banana pepper
Days After First/Last Appl.	27, 27	27, 27	27, 27	27, 27
Treatment Appl. Interval	27 DA-A	27 DA-A	27 DA-A	27 DA-A
Planting Interval	27 DP-1	27 DP-1	27 DP-1	27 DP-1
Description	PO4-P - 21 DAT	SP - 21 DAT	pH - 21 DAT	EC - 21 DAT
Trt Treatment	41	42	43	44
No. Name				
1 UNTREATED CONTROL	21.98a	223.3a	6.78c	2.010a
2 EF Polymer 1% w/w A	21.72a	211.7a	6.97b	1.752a
3 EF Polymer 3% w/w A	23.43a	226.7a	7.08a	2.080a
4 EF Polymer 5% w/w A	23.90a	238.3a	7.15a	2.112a
LSD P=.05	2.247	30.45	0.076	0.3318
Standard Deviation	1.826	24.74	0.062	0.2697
CV	8.02	11.0	0.89	13.56
Grand Mean	22.758	225.00	6.996	1.9883
Levene's F^	1.945	0.498	1.254	0.416
Levene's Prob(F)	0.155	0.688	0.317	0.743
Rank X2	.	.	.	.
P(Rank X2)	.	.	.	.
Shapiro-Wilk^	0.964	0.8623*	0.9569	0.9584
P(Shapiro-Wilk)^	0.5248	0.0037*	0.3802	0.4078
Skewness^	0.49	1.4981*	0.0	0.19
P(Skewness)^	0.3385	0.0066*	1.0	0.7082
Kurtosis^	0.5098	5.2452*	-0.4005	0.4908
P(Kurtosis)^	0.6058	0.0*	0.6848	0.6191
Replicate F	2.231	1.062	0.367	0.472
Replicate Prob(F)	0.1050	0.4193	0.8633	0.7913
Treatment F	2.067	1.180	40.108	2.203
Treatment Prob(F)	0.1477	0.3506	0.0001	0.1301

Means followed by same letter or symbol do not significantly differ (P=.05, LSD).

Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

^Calculated from residual.

SynTech Research USA

EF polymer irrigation reduction trial- Fruiting vegetable transplant- Greenhouse- California-Fall 2025

Trial ID:25-US-POLYMER- Transplant-Pepper-CA

Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director:Parsa Tehranchian

Sponsor Contact:Lindsay Hutchinson

Rating Date	Nov-12-2025	Nov-12-2025	Nov-12-2025	Nov-12-2025
Part Rated	PLOT, C	SOIL, C	PLOT, C	SOIL, C
Rating Type	WEIGHT	MOICON	WEIGHT	MOICON
Rating Unit	g	%	g	%
Sample Size	1 POT	1 POT	1 POT	1 POT
Collection Basis	1 PLANT	1 PLANT	1 PLANT	1 PLANT
Number of Subsamples	1	1	1	1
Crop ID Code	1, CPSAN	1, CPSAN	1, CPSAN	1, CPSAN
BBCH Scale	BVSO	BVSO	BVSO	BVSO
Crop Scientific Name	Capsicum annuum	Capsicum annuum	Capsicum annuum	Capsicum annuum
Crop Name	Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Variety	Banana pepper	Banana pepper	Banana pepper	Banana pepper
Days After First/Last Appl.	0, 0	0, 0	0, 0	0, 0
Treatment Appl. Interval	0 DA-A	0 DA-A	0 DA-A	0 DA-A
Planting Interval	0 DP-1	0 DP-1	0 DP-1	0 DP-1
Description	Weight 1 HAT	%Moisture 1 HAT	Weight 3 HAT	%Moisture 3 HAT
Trt Treatment	Rate	Appl		
No. Name	Rate Unit	Code	Plot	
1 UNTREATED CONTROL			1	2
			3	4
			101	542.0
			203	531.0
			301	543.0
			402	525.0
			501	538.0
			604	512.0
			Mean =	531.8
2 EF Polymer	1% w/w A		103	600.0
			204	614.0
			302	605.0
			404	613.0
			502	616.0
			603	622.0
			Mean =	611.7
3 EF Polymer	3% w/w A		102	688.0
			201	694.0
			303	700.0
			401	695.0
			503	697.0
			601	701.0
			Mean =	695.8
4 EF Polymer	5% w/w A		104	701.0
			202	786.0
			304	711.0
			403	796.0
			504	786.0
			602	696.0
			Mean =	746.0
				29.40
				36.50
				35.60
				528.0
				37.10
				506.0
				36.70
				520.0
				34.50
				498.0
				36.00
				513.0
				35.65
				584.0
				46.40
				597.0
				48.80
				591.0
				45.70
				593.0
				51.30
				598.0
				49.20
				600.0
				49.20
				593.8
				48.43
				665.0
				55.20
				669.0
				57.50
				683.0
				58.90
				675.0
				59.90
				678.0
				57.40
				685.0
				61.50
				675.8
				58.40
				70.90
				70.90
				80.30
				72.80
				66.20
				70.50
				68.80
				74.90
				72.10
				72.80
				69.10
				79.30
				71.23
				725.7
				73.53

SynTech Research USA

EF polymer irrigation reduction trial- Fruiting vegetable transplant- Greenhouse- California-Fall 2025

Trial ID:25-US-POLYMER- Transplant-Pepper-CA

Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director:Persa Tehranchian

Sponsor Contact:Lindsay Hutchinson

Rating Date	Nov-12-2025	Nov-12-2025	Nov-13-2025	Nov-13-2025
Part Rated	PLOT, C	SOIL, C	PLOT, C	SOIL, C
Rating Type	WEIGHT	MOICON	WEIGHT	MOICON
Rating Unit	g	%	g	%
Sample Size	1 POT	1 POT	1 POT	1 POT
Collection Basis	1 PLANT	1 PLANT	1 PLANT	1 PLANT
Number of Subsamples	1	1	1	1
Crop ID Code	1, CPSAN	1, CPSAN	1, CPSAN	1, CPSAN
BBCH Scale	BVSO	BVSO	BVSO	BVSO
Crop Scientific Name	Capsicum annuum	Capsicum annuum	Capsicum annuum	Capsicum annuum
Crop Name	Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Variety	Banana pepper	Banana pepper	Banana pepper	Banana pepper
Days After First/Last Appl.	0, 0	0, 0	1, 1	1, 1
Treatment Appl. Interval	0 DA-A	0 DA-A	1 DA-A	1 DA-A
Planting Interval	0 DP-1	0 DP-1	1 DP-1	1 DP-1
Description	Weight 6 HAT	%Moisture 6 HAT	Weight 1 DAT	%Moisture 1 DAT
Trt Treatment	Rate	Appl		
No. Name	Rate Unit Code Plot			
1	UNTREATED CONTROL			
	101	506.0	37.40	477.0
	203	498.0	37.90	478.0
	301	516.0	38.60	488.0
	402	498.0	41.00	468.0
	501	508.0	39.40	490.0
	604	484.0	30.20	460.0
	Mean =	501.7	37.42	476.8
2	EF Polymer	1% w/w A		
	103	567.0	52.80	551.0
	204	580.0	48.40	575.0
	302	575.0	63.10	557.0
	404	579.0	64.20	566.0
	502	583.0	48.60	564.0
	603	584.0	56.30	568.0
	Mean =	578.0	55.57	563.5
3	EF Polymer	3% w/w A		
	102	653.0	56.90	625.0
	201	658.0	50.40	602.0
	303	671.0	58.80	615.0
	401	665.0	54.10	633.0
	503	665.0	62.30	623.0
	601	674.0	60.80	640.0
	Mean =	664.3	57.22	623.0
4	EF Polymer	5% w/w A		
	104	667.0	60.30	653.0
	202	757.0	62.20	742.0
	304	684.0	68.60	682.0
	403	765.0	87.30	757.0
	504	748.0	88.10	658.0
	602	656.0	87.50	683.0
	Mean =	712.8	75.67	695.8

SynTech Research USA

EF polymer irrigation reduction trial- Fruiting vegetable transplant- Greenhouse- California-Fall 2025

Trial ID:25-US-POLYMER- Transplant-Pepper-CA

Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director:Persa Tehranchian

Sponsor Contact:Lindsay Hutchinson

Rating Date	Nov-17-2025	Nov-17-2025	Nov-19-2025	Nov-19-2025
Part Rated	PLOT, C	SOIL, C	PLOT, C	SOIL, C
Rating Type	WEIGHT	MOICON	WEIGHT	MOICON
Rating Unit	g	%	g	%
Sample Size	1 POT	1 POT	1 POT	1 POT
Collection Basis	1 PLANT	1 PLANT	1 PLANT	1 PLANT
Number of Subsamples	1	1	1	1
Crop ID Code	1, CPSAN	1, CPSAN	1, CPSAN	1, CPSAN
BBCH Scale	BVSO	BVSO	BVSO	BVSO
Crop Scientific Name	Capsicum annuum	Capsicum annuum	Capsicum annuum	Capsicum annuum
Crop Name	Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Variety	Banana pepper	Banana pepper	Banana pepper	Banana pepper
Days After First/Last Appl.	5, 5	5, 5	7, 7	7, 7
Treatment Appl. Interval	5 DA-A	5 DA-A	7 DA-A	7 DA-A
Planting Interval	5 DP-1	5 DP-1	7 DP-1	7 DP-1
Description	Weight 5 DAT	%Moisture 5 DAT	Weight 7 DAT	%Moisture 7 DAT
Trt Treatment	Rate	Appl		
No. Name	Rate Unit Code Plot			
1	UNTREATED CONTROL			
	101	572.0	44.60	454.0
	203	574.0	52.10	461.0
	301	573.0	45.20	466.0
	402	560.0	38.40	456.0
	501	571.0	34.00	455.0
	604	542.0	47.20	430.0
	Mean =	565.3	43.58	453.7
2	EF Polymer	1% w/w A		
	103	597.0	30.80	502.0
	204	624.0	44.90	533.0
	302	623.0	49.60	532.0
	404	628.0	37.50	540.0
	502	629.0	44.10	536.0
	603	642.0	50.00	546.0
	Mean =	623.8	42.82	531.5
3	EF Polymer	3% w/w A		
	102	666.0	58.40	551.0
	201	640.0	47.30	516.0
	303	657.0	59.90	537.0
	401	654.0	67.10	540.0
	503	643.0	53.20	528.0
	601	671.0	50.80	550.0
	Mean =	655.2	56.12	537.0
4	EF Polymer	5% w/w A		
	104	708.0	61.30	587.0
	202	785.0	55.40	682.0
	304	737.0	55.10	644.0
	403	813.0	60.70	687.0
	504	727.0	64.40	617.0
	602	687.0	83.50	683.0
	Mean =	742.8	63.40	650.0

SynTech Research USA

EF polymer irrigation reduction trial- Fruiting vegetable transplant- Greenhouse- California-Fall 2025

Trial ID:25-US-POLYMER- Transplant-Pepper-CA

Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director:Persa Tehranchian

Sponsor Contact:Lindsay Hutchinson

Rating Date	Nov-26-2025	Nov-26-2025	Dec-3-2025	Dec-3-2025
Part Rated	PLANT, C	SOIL, C	PLANT, C	SOIL, C
Rating Type	WEIGHT	MOICON	WEIGHT	MOICON
Rating Unit	g	%	g	%
Sample Size	1 POT	1 POT	1 POT	1 POT
Collection Basis	1 PLANT	1 PLANT	1 PLANT	1 PLANT
Number of Subsamples	1	1	1	1
Crop ID Code	1, CPSAN	1, CPSAN	1, CPSAN	1, CPSAN
BBCH Scale	BVSO	BVSO	BVSO	BVSO
Crop Scientific Name	Capsicum annuum	Capsicum annuum	Capsicum annuum	Capsicum annuum
Crop Name	Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Variety	Banana pepper	Banana pepper	Banana pepper	Banana pepper
Days After First/Last Appl.	14, 14	14, 14	21, 21	21, 21
Treatment Appl. Interval	14 DA-A	14 DA-A	21 DA-A	21 DA-A
Planting Interval	14 DP-1	14 DP-1	21 DP-1	21 DP-1
Description	Weight 14 DAT	%Moisture 14 DAT	Weight 21 DAT	%Moisture 21 DAT
Trt No.	Treatment Name	Rate	Unit	Appl Code
1	UNTREATED CONTROL			
		13		14
		15		16
		101	556.0	37.00
		203	590.0	31.50
		301	537.0	31.50
		402	595.0	35.70
		501	564.0	29.50
		604	551.0	37.10
	Mean =	565.5	33.72	396.62
2	EF Polymer	1% w/w A	103	603.0
		204	577.0	41.40
		302	601.0	44.60
		404	598.0	42.00
		502	609.0	49.60
		603	576.0	39.40
	Mean =	594.0	44.48	499.33
3	EF Polymer	3% w/w A	102	600.0
		201	614.0	52.70
		303	621.0	59.50
		401	628.0	56.30
		503	616.0	54.50
		601	639.0	51.70
	Mean =	619.7	54.28	483.17
4	EF Polymer	5% w/w A	104	542.0
		202	582.0	57.80
		304	633.0	51.80
		403	634.0	54.60
		504	606.0	51.70
		602	632.0	53.30
	Mean =	604.8	53.88	551.67

SynTech Research USA

EF polymer irrigation reduction trial- Fruiting vegetable transplant- Greenhouse- California-Fall 2025

Trial ID:25-US-POLYMER- Transplant-Pepper-CA

Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director:Persa Tehranchian

Sponsor Contact:Lindsay Hutchinson

Rating Date	Dec-3-2025	Dec-3-2025	Dec-3-2025	Dec-3-2025
Part Rated	SHOOT, C	PLANT, C	LEAF, C	PLANT, C
Rating Type	BIOMAS	HEIGHT	COPLPA	CHLCON
Rating Unit	g	IN	NUMBER	mmol/m2s
Sample Size	1 PLANT	1 PLANT	1 PLANT	1 READNG
Collection Basis	1 PLANT	1 PLANT	1 PLANT	1 PLANT
Number of Subsamples	6	6	6	3
Crop ID Code	1, CPSAN	1, CPSAN	1, CPSAN	1, CPSAN
BBCH Scale	BVSO	BVSO	BVSO	BVSO
Crop Scientific Name	Capsicum annum	Capsicum annum	Capsicum annum	Capsicum annum
Crop Name	Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Variety	Banana pepper	Banana pepper	Banana pepper	Banana pepper
Days After First/Last Appl.	21, 21	21, 21	21, 21	21, 21
Treatment Appl. Interval	21 DA-A	21 DA-A	21 DA-A	21 DA-A
Planting Interval	21 DP-1	21 DP-1	21 DP-1	21 DP-1
Description	Fresh shoot bio>	Height 21 DAT	# of leaf 21 DAT	Chlorophyll 21 >
Trt No.	Treatment Name	Rate	Unit	Appl Code
1	UNTREATED CONTROL	17	18	19
				20
		1.1708	2.417	2.50
		0.4177	2.500	2.58
		0.4310	2.500	2.25
		0.4215	2.583	2.42
		0.4238	2.417	2.42
		0.4342	2.458	2.25
	Mean =	0.5498	2.479	2.40
2	EF Polymer	1% w/w A	103	0.4138
			204	0.2990
			302	0.2802
			404	0.7947
			502	0.2820
			603	0.2878
	Mean =	0.3929	1.646	2.06
3	EF Polymer	3% w/w A	102	0.1705
			201	0.1922
			303	0.1622
			401	0.1665
			503	0.1787
			601	0.1720
	Mean =	0.1737	1.479	1.97
4	EF Polymer	5% w/w A	104	0.1420
			202	0.1492
			304	0.1278
			403	0.1338
			504	0.1203
			602	0.1322
	Mean =	0.1342	1.333	1.97

SynTech Research USA

EF polymer irrigation reduction trial- Fruiting vegetable transplant- Greenhouse- California-Fall 2025

Trial ID:25-US-POLYMER- Transplant-Pepper-CA

Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director:Persa Tehranchian

Sponsor Contact:Lindsay Hutchinson

Rating Date	Dec-9-2025	Dec-9-2025	Dec-9-2025	Dec-9-2025
Part Rated	SOIL, C	SOIL, C	SOIL, C	SOIL, C
Rating Type	CONK	CONNO3	CONNUT	CONNUT
Rating Unit	mg/L	mg/L	mg/L	%
Sample Size	1 SAMPLE	1 SAMPLE	1 SAMPLE	1 SAMPLE
Collection Basis	1 PLANT	1 PLANT	1 PLANT	1 PLANT
Number of Subsamples	1	1	1	1
Crop ID Code	1, CPSAN	1, CPSAN	1, CPSAN	1, CPSAN
BBCH Scale	BVSO	BVSO	BVSO	BVSO
Crop Scientific Name	Capsicum annuum	Capsicum annuum	Capsicum annuum	Capsicum annuum
Crop Name	Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Variety	Banana pepper	Banana pepper	Banana pepper	Banana pepper
Days After First/Last Appl.	27, 27	27, 27	27, 27	27, 27
Treatment Appl. Interval	27 DA-A	27 DA-A	27 DA-A	27 DA-A
Planting Interval	27 DP-1	27 DP-1	27 DP-1	27 DP-1
Description	K - 0 DAT	NO3-N - 0 DAT	PO4-P - 0 DAT	SP - 0 DAT
Trt No.	21	22	23	24
Treatment Name	UNTREATED CONTROL			
Rate				
Unit				
Appl Code				
Plot				
1	101	432.0	10.10	35.10
	203	435.0	9.70	28.80
	301	354.0	9.00	30.10
	402	393.0	10.50	29.90
	501	419.0	11.00	34.60
	604	396.0	9.20	30.20
	Mean =	404.8	9.92	31.45
2	103	410.0	11.80	32.20
	204	429.0	12.30	38.00
	302	422.0	11.80	50.80
	404	421.0	11.60	41.10
	502	375.0	11.63*	35.20
	603	404.0	11.60	38.50
	Mean =	410.2	11.79	39.30
3	102	353.0	8.50	31.40
	201	386.0	8.50	36.10
	303	383.0	9.20	35.90
	401	399.0	7.80	34.60
	503	378.0	7.80	29.60
	601	383.0	7.40	35.10
	Mean =	380.3	8.20	33.78
4	104	370.0	9.50	33.50
	202	379.0	3.20	34.60
	304	404.0	8.80	34.20
	403	385.0	7.70	35.00
	504	400.0	6.20	39.10
	602	353.0	8.80	28.10
	Mean =	381.8	7.37	34.08

SynTech Research USA

EF polymer irrigation reduction trial- Fruiting vegetable transplant- Greenhouse- California-Fall 2025

Trial ID:25-US-POLYMER- Transplant-Pepper-CA

Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director:Persa Tehranchian

Sponsor Contact:Lindsay Hutchinson

Rating Date	Dec-9-2025	Dec-9-2025	Dec-9-2025	Dec-9-2025
Part Rated	SOIL, C	SOIL, C	SOIL, C	SOIL, C
Rating Type	PH	ELCOND	CONK	CONNO3
Rating Unit	PH	DS/M	mg/L	mg/L
Sample Size	1 SAMPLE	1 SAMPLE	1 SAMPLE	1 SAMPLE
Collection Basis	1 PLANT	1 PLANT	1 PLANT	1 PLANT
Number of Subsamples	1	1	1	1
Crop ID Code	1, CPSAN	1, CPSAN	1, CPSAN	1, CPSAN
BBCH Scale	BVSO	BVSO	BVSO	BVSO
Crop Scientific Name	Capsicum annuum	Capsicum annuum	Capsicum annuum	Capsicum annuum
Crop Name	Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Variety	Banana pepper	Banana pepper	Banana pepper	Banana pepper
Days After First/Last Appl.	27, 27	27, 27	27, 27	27, 27
Treatment Appl. Interval	27 DA-A	27 DA-A	27 DA-A	27 DA-A
Planting Interval	27 DP-1	27 DP-1	27 DP-1	27 DP-1
Description	pH - 0 DAT	EC - 0 DAT	K - 7 DAT	NO3-N - 7 DAT
Trt No.	25	26	27	28
Treatment Name	UNTREATED CONTROL			
Rate				
Unit				
Appl Code				
Plot	101	2.110	475.0	14.80
	203	2.030	406.0	9.00
	301	2.370	367.0	7.90
	402	2.030	339.0	7.10
	501	2.380	358.0	6.30
	604	2.140	384.0	11.70
Mean =	6.52	2.177	388.2	9.47
2 EF Polymer	1% w/w A			
	103	1.990	400.0	3.80
	204	1.750	435.0	3.20
	302	2.470	434.0	5.90
	404	2.310	404.0	2.50
	502	1.980	450.0	4.30
	603	1.880	384.0	3.50
Mean =	6.53	2.063	417.8	3.87
3 EF Polymer	3% w/w A			
	102	1.980	442.0	0.70
	201	2.000	422.0	3.70
	303	1.730	452.0	2.10
	401	2.010	567.0	1.10
	503	1.830	580.0	3.30
	601	1.870	563.0	1.50
Mean =	6.55	1.903	504.3	2.07
4 EF Polymer	5% w/w A			
	104	2.060	578.0	0.60
	202	2.410	836.0	0.40
	304	2.000	586.0	0.10
	403	2.000	527.0	0.20
	504	2.330	565.0	0.20
	602	2.140	540.0	0.30
Mean =	6.52	2.157	605.3	0.30

SynTech Research USA

EF polymer irrigation reduction trial- Fruiting vegetable transplant- Greenhouse- California-Fall 2025

Trial ID:25-US-POLYMER- Transplant-Pepper-CA

Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director:Persa Tehranchian

Sponsor Contact:Lindsay Hutchinson

Rating Date	Dec-9-2025	Dec-9-2025	Dec-9-2025	Dec-9-2025
Part Rated	SOIL, C	SOIL, C	SOIL, C	SOIL, C
Rating Type	CONNUT	CONNUT	PH	ELCOND
Rating Unit	mg/L	%	PH	DS/M
Sample Size	1 SAMPLE	1 SAMPLE	1 SAMPLE	1 SAMPLE
Collection Basis	1 PLANT	1 PLANT	1 PLANT	1 PLANT
Number of Subsamples	1	1	1	1
Crop ID Code	1, CPSAN	1, CPSAN	1, CPSAN	1, CPSAN
BBCH Scale	BVSO	BVSO	BVSO	BVSO
Crop Scientific Name	Capsicum annuum	Capsicum annuum	Capsicum annuum	Capsicum annuum
Crop Name	Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Variety	Banana pepper	Banana pepper	Banana pepper	Banana pepper
Days After First/Last Appl.	27, 27	27, 27	27, 27	27, 27
Treatment Appl. Interval	27 DA-A	27 DA-A	27 DA-A	27 DA-A
Planting Interval	27 DP-1	27 DP-1	27 DP-1	27 DP-1
Description	PO4-P - 7 DAT	SP - 7 DAT	pH - 7 DAT	EC - 7 DAT
Trt No.	29	30	31	32
Treatment Name	UNTREATED CONTROL			
Rate				
Unit				
Appl Code				
Plot	101	210.0	6.60	2.000
	203	200.0	6.60	2.190
	301	190.0	6.60	2.380
	402	210.0	6.60	2.140
	501	190.0	6.60	1.990
	604	200.0	6.60	2.100
Mean =	29.47	200.0	6.60	2.133
2	EF Polymer	1% w/w A		
	103	220.0	6.70	2.350
	204	210.0	6.80	2.120
	302	220.0	6.70	2.270
	404	210.0	6.60	2.100
	502	210.0	6.70	2.310
	603	220.0	6.70	2.280
Mean =	28.82	215.0	6.70	2.238
3	EF Polymer	3% w/w A		
	102	210.0	6.80	2.640
	201	230.0	6.70	2.230
	303	220.0	6.80	2.390
	401	220.0	6.80	1.990
	503	210.0	6.70	2.280
	601	220.0	6.70	2.030
Mean =	24.10	218.3	6.75	2.260
4	EF Polymer	5% w/w A		
	104	240.0	7.00	1.940
	202	210.0	6.80	2.960
	304	190.0	6.70	2.140
	403	230.0	6.70	2.210
	504	220.0	6.70	2.040
	602	210.0	6.80	2.020
Mean =	25.02	216.7	6.78	2.218

SynTech Research USA

EF polymer irrigation reduction trial- Fruiting vegetable transplant- Greenhouse- California-Fall 2025

Trial ID:25-US-POLYMER- Transplant-Pepper-CA

Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director:Persa Tehranchian

Sponsor Contact:Lindsay Hutchinson

Rating Date	Dec-9-2025	Dec-9-2025	Dec-9-2025	Dec-9-2025
Part Rated	SOIL, C	SOIL, C	SOIL, C	SOIL, C
Rating Type	CONK	CONNO3	CONNUT	CONNUT
Rating Unit	mg/L	mg/L	mg/L	%
Sample Size	1 SAMPLE	1 SAMPLE	1 SAMPLE	1 SAMPLE
Collection Basis	1 PLANT	1 PLANT	1 PLANT	1 PLANT
Number of Subsamples	1	1	1	1
Crop ID Code	1, CPSAN	1, CPSAN	1, CPSAN	1, CPSAN
BBCH Scale	BVSO	BVSO	BVSO	BVSO
Crop Scientific Name	Capsicum annuum	Capsicum annuum	Capsicum annuum	Capsicum annuum
Crop Name	Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Variety	Banana pepper	Banana pepper	Banana pepper	Banana pepper
Days After First/Last Appl.	27, 27	27, 27	27, 27	27, 27
Treatment Appl. Interval	27 DA-A	27 DA-A	27 DA-A	27 DA-A
Planting Interval	27 DP-1	27 DP-1	27 DP-1	27 DP-1
Description	K - 14 DAT	NO3-N - 14 DAT	PO4-P - 14 DAT	SP - 14 DAT
Trt No.	33	34	35	36
Treatment Name	UNTREATED CONTROL			
Rate				
Unit				
Appl Code				
Plot				
1	101	324.0	19.90	21.50
	203	281.0	17.90	23.30
	301	376.0	23.30	23.10
	402	275.0	18.40	20.50
	501	353.0	25.40	25.00
	604	337.0	26.60	25.60
	Mean =	324.3	21.92	23.17
2	103	320.0	9.70	25.90
	204	374.0	12.30	24.30
	302	366.0	7.40	26.30
	404	357.0	9.30	24.20
	502	332.0	4.40	25.80
	603	388.0	12.40	25.60
	Mean =	356.2	9.25	25.35
3	102	488.0	0.40	26.80
	201	421.0	0.20	26.10
	303	462.0	0.20	26.20
	401	364.0	0.30	24.40
	503	450.0	0.30	25.60
	601	556.0	0.60	31.70
	Mean =	456.8	0.33	26.80
4	104	512.0	3.10	24.00
	202	662.0	0.40	26.80
	304	543.0	0.30	24.60
	403	506.0	0.40	23.20
	504	505.0	0.20	26.60
	602	512.0	0.50	24.50
	Mean =	540.0	0.82	24.95

SynTech Research USA

EF polymer irrigation reduction trial- Fruiting vegetable transplant- Greenhouse- California-Fall 2025

Trial ID:25-US-POLYMER- Transplant-Pepper-CA

Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director:Persa Tehranchian

Sponsor Contact:Lindsay Hutchinson

Rating Date	Dec-9-2025	Dec-9-2025	Dec-9-2025	Dec-9-2025
Part Rated	SOIL, C	SOIL, C	SOIL, C	SOIL, C
Rating Type	PH	ELCOND	CONK	CONNO3
Rating Unit	PH	DS/M	mg/L	mg/L
Sample Size	1 SAMPLE	1 SAMPLE	1 SAMPLE	1 SAMPLE
Collection Basis	1 PLANT	1 PLANT	1 PLANT	1 PLANT
Number of Subsamples	1	1	1	1
Crop ID Code	1, CPSAN	1, CPSAN	1, CPSAN	1, CPSAN
BBCH Scale	BVSO	BVSO	BVSO	BVSO
Crop Scientific Name	Capsicum annuum	Capsicum annuum	Capsicum annuum	Capsicum annuum
Crop Name	Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Variety	Banana pepper	Banana pepper	Banana pepper	Banana pepper
Days After First/Last Appl.	27, 27	27, 27	27, 27	27, 27
Treatment Appl. Interval	27 DA-A	27 DA-A	27 DA-A	27 DA-A
Planting Interval	27 DP-1	27 DP-1	27 DP-1	27 DP-1
Description	pH - 14 DAT	EC - 14 DAT	K - 21 DAT	NO3-N - 21 DAT
Trt No.	37	38	39	40
Treatment Name	UNTREATED CONTROL			
Rate				
Unit				
Appl Code				
Plot				
1	101	1.980	364.0	31.90
	203	2.120	382.0	24.40
	301	2.240	350.0	31.90
	402	2.230	295.0	23.20
	501	1.980	314.0	20.10
	604	2.120	302.0	25.50
	Mean =	2.112	334.5	26.17
2	103	2.070	324.0	16.40
	204	2.280	390.0	17.80
	302	1.670	356.0	11.80
	404	1.930	320.0	11.30
	502	2.010	375.0	17.30
	603	1.880	310.0	11.60
	Mean =	1.973	345.8	14.37
3	102	2.600	525.0	9.20
	201	2.060	417.0	5.40
	303	2.000	424.0	5.40
	401	2.000	393.0	5.70
	503	2.010	453.0	4.20
	601	2.060	438.0	5.30
	Mean =	2.122	441.7	5.87
4	104	2.000	576.0	0.80
	202	2.780	675.0	1.00
	304	2.480	389.0	1.00
	403	2.320	579.0	0.80
	504	2.110	662.0	0.50
	602	2.180	373.0	1.40
	Mean =	2.312	542.3	0.92

SynTech Research USA

EF polymer irrigation reduction trial- Fruiting vegetable transplant- Greenhouse- California-Fall 2025

Trial ID:25-US-POLYMER- Transplant-Pepper-CA

Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director:Persa Tehranchian

Sponsor Contact:Lindsay Hutchinson

Rating Date	Dec-9-2025	Dec-9-2025	Dec-9-2025	Dec-9-2025
Part Rated	SOIL, C	SOIL, C	SOIL, C	SOIL, C
Rating Type	CONNUT	CONNUT	PH	ELCOND
Rating Unit	mg/L	%	PH	DS/M
Sample Size	1 SAMPLE	1 SAMPLE	1 SAMPLE	1 SAMPLE
Collection Basis	1 PLANT	1 PLANT	1 PLANT	1 PLANT
Number of Subsamples	1	1	1	1
Crop ID Code	1, CPSAN	1, CPSAN	1, CPSAN	1, CPSAN
BBCH Scale	BVSO	BVSO	BVSO	BVSO
Crop Scientific Name	Capsicum annuum	Capsicum annuum	Capsicum annuum	Capsicum annuum
Crop Name	Bell Pepper	Bell Pepper	Bell Pepper	Bell Pepper
Crop Variety	Banana pepper	Banana pepper	Banana pepper	Banana pepper
Days After First/Last Appl.	27, 27	27, 27	27, 27	27, 27
Treatment Appl. Interval	27 DA-A	27 DA-A	27 DA-A	27 DA-A
Planting Interval	27 DP-1	27 DP-1	27 DP-1	27 DP-1
Description	PO4-P - 21 DAT	SP - 21 DAT	pH - 21 DAT	EC - 21 DAT
Trt No.	41	42	43	44
Treatment Name	UNTREATED CONTROL			
Rate				
Unit				
Appl Code				
Plot				
1	101	25.10	240.0	6.70
	203	24.10	220.0	6.80
	301	22.20	200.0	6.70
	402	18.90	220.0	6.80
	501	20.60	230.0	6.90
	604	21.00	230.0	6.80
	Mean =	21.98	223.3	6.78
2	103	22.20	210.0	7.00
	204	23.00	210.0	6.90
	302	21.90	210.0	7.00
	404	21.10	210.0	7.00
	502	21.20	220.0	6.90
	603	20.90	210.0	7.00
	Mean =	21.72	211.7	6.97
3	102	25.50	320.0	7.10
	201	23.40	200.0	7.10
	303	24.00	220.0	7.10
	401	20.60	200.0	7.00
	503	22.40	210.0	7.10
	601	24.70	210.0	7.10
	Mean =	23.43	226.7	7.08
4	104	24.90	230.0	7.20
	202	25.90	260.0	7.20
	304	21.10	240.0	7.10
	403	23.00	230.0	7.10
	504	28.00	240.0	7.10
	602	20.50	230.0	7.20
	Mean =	23.90	238.3	7.15

SynTech Research USA

EF polymer irrigation reduction trial- Fruiting vegetable transplant- Greenhouse- California-Fall 2025

Trial ID:25-US-POLYMER- Transplant-Pepper-CA

Protocol ID:25-US-POLYMER-Transplant

Location:Reedley, CA

Trial Year:2025

Study Director: Parsa Tehranchian

Sponsor Contact: Lindsay Hutchinson

Part Rated

PLOT = plot

SOIL = soil

PLANT = plant

SHOOT = shoot

LEAF = leaf

C = Crop is Part Rated

Rating Type

WEIGHT = weight

MOI CON = moisture content| %PROPORTION

BIOMAS = biomass

HEIGHT = height

COPLPA = count - plant part

CHLCON = chlorophyll content

CONK = content - potassium

CONNO3 = content - nitrate

CONNUT = content - nutrient

PH = pH

ELCOND = electrical conductivity

Rating Unit

g, , , = gram|WEIGHT

%, , , = percent|PERCENT

IN, , , = inch|LENGTH

NUMBER, , , = number|COUNT

mmol/m2s, , , = millimol per square meter and second

mg/L, , , = milligram/liter|CONCENTRATION

PH, , , = ph|PH

DS/M, , , = decisiemens/meter (equivalent to millimhos/cm)|CONDUCTIVITY

POT = pot

PLANT = plant/plant biomass/shrub

READNG = readings

SAMPLE = sample

PLANT = plant/plant biomass/shrub

Crop ID Code

1, CPSAN, BVSO, Capsicum annuum, Bell Pepper, Banana pepper, = Nov-12-2025|seeded|by hand|2.25|IN

Planting Interval

0 DP-1 = 1 CPSAN Nov-12-2025

1 DP-1 = 1 CPSAN Nov-12-2025

5 DP-1 = 1 CPSAN Nov-12-2025

7 DP-1 = 1 CPSAN Nov-12-2025

14 DP-1 = 1 CPSAN Nov-12-2025

21 DP-1 = 1 CPSAN Nov-12-2025

27 DP-1 = 1 CPSAN Nov-12-2025

Additional Treatment InformationRate Unit

% W/W = Percent, Weight Product per Weight Mix Basis (Metric=same)|0

sis (Metric=same)|0



Figure1: Comparison of the elevated surface of the EP polymer-treated potting mix with the untreated inserts 8 hours after sub-irrigation.



Figure2: Plant height difference grown on EP polymer-treated and untreated potting mix.



Figure3: Seedling height – Treatment 1 (UTC) – 21 days after seeding.



Figure 4: Seedling height – Treatment 2 (1% EP) – 21 days after seeding.



Figure 5: Seedling height – Treatment 3 (3% EP) – 21 days after seeding.



Figure 6: Seedling height – Treatment 4 (5% EP) – 21 days after seeding.