

FIELD FACTS

PROACQUA® NUTRITIONAL PROGRAM IN SPINACH

KEY FINDINGS:

PROACQUA

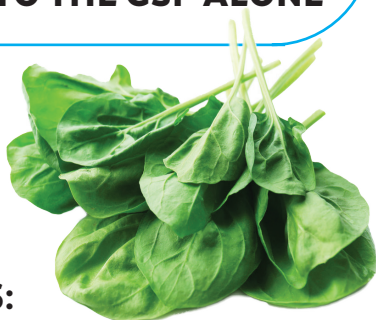
WATER-SOLUBLE NUTRIENTS

↑ **NUTRIENT
CONTENT**

↑ **QUALITY**

IN SPINACH PRODUCTION

COMPARED TO THE GSP ALONE



TREATMENTS:

All ProAcqua products were foliar nutrient applications, except for Spring and Finish which were applied via drip irrigation.

1. Grower Standard Practice (GSP)
2. GSP w/**Spring** (20 lb/ac) & **Finish** (18 lb/ac)
3. GSP w/**Elevate** (4 oz/ac)
4. GSP w/**N Micro** (2 lb/ac)
5. GSP w/ProAcqua Program (**Spring & Finish**, **Elevate**, **N Micro**, **Restore** (4 oz/ac), **K Micro** (1 lb/ac) and **Nourish Zn** (1 lb/ac))

OBJECTIVE:

Demonstrate the benefit of a ProAcqua nutritional program in spinach production by implementing a trial with a third-party research cooperator.

OVERVIEW:

Uniquely formulated with high-quality nutrients and proprietary adjuvant blends, ProAcqua delivers the solubility and compatibility to improve crop performance and promote yield.

TRIAL DETAILS:

Location(s): Yuma, AZ

Trial Design: Small Plot, Randomized Complete Block Design w/Five Replicates

Crop: 'Corvair' Spinach (Seeded December 20th & Harvested March 6th)

Soil Profile: pH = 8.2 CEC = 14 meq/100g
OM = 1.3% Soil Texture = Clay Loam

Stats: General Linear Model,
Least Squares Means Student's t
(P≤0.10)



Trt	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
1	GROWER STANDARD PRACTICE (GSP)						
2	SPRING	SPRING	SPRING	SPRING +FINISH	SPRING	SPRING	SPRING
3				ELEVATE		ELEVATE	
4		N MICRO		N MICRO		N MICRO	
5	ALL OF THE ABOVE PLUS...						
	RESTORE	RESTORE	RESTORE	RESTORE	RESTORE	RESTORE	RESTORE
		NOURISH Zn		NOURISH Zn			
				K MICRO		K MICRO	

RESULTS:

ProAcqua treatments resulted in earlier canopy close and a greener spinach crop, with a 19% increase in NDVI between the GSP and the ProAcqua Nutritional Program (Fig. 1). Vigorous growth early in the season is beneficial for weed control, as the plant is able to outcompete weeds once the canopy is closed.

Early season NDVI (0-1)

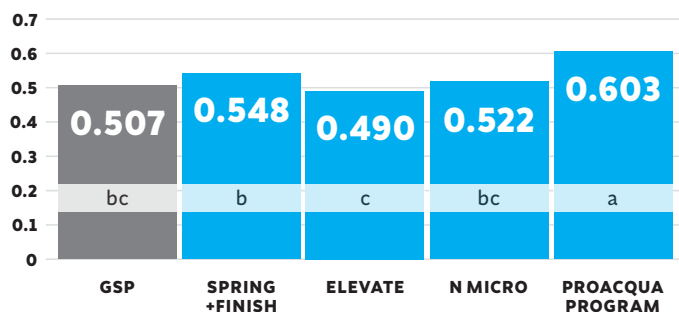


FIGURE 1. NDVI measurements taken 4 weeks after seeding.
 $P < 0.01$, $SD \pm 0.070$



**UP TO
19%
INCREASE IN NDVI
VS. GSP**

On average, ProAcqua reduced the incidence of yellow leaves at harvest by 28% relative to the GSP (Fig. 2).

Yellow leaves (%)

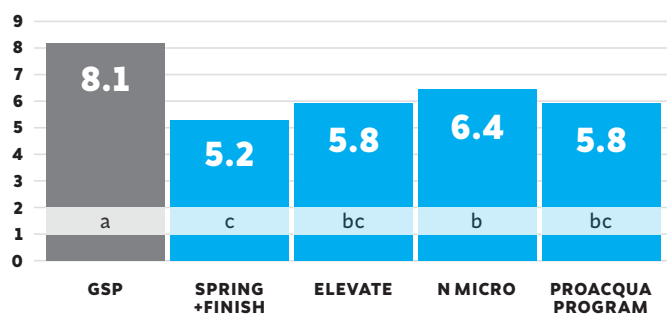


FIGURE 2. Percentage of yellow leaves at harvest. $P < 0.01$, $SD \pm 1.6\%$

Application of N Micro (which includes 2% boron, 9% zinc, and 6.5% manganese) significantly increased nutrient uptake in the harvested spinach leaves as compared to the GSP (Fig. 3).

Spring and Finish contain only trace amounts of boron, zinc and manganese, and Elevate contains none.

Nutrient	Increase (% of ctrl)
BORON	+8.5%
ZINC	+29.5%
MANGANESE	+43.3%

FIGURE 3. Nutrient content in tissue samples taken at harvest. ($P < 0.05$)

Application of ProAcqua products increased the height of the harvested spinach plants, particularly with Spring and Finish or Elevate applied with the GSP (Fig 4). Plant height has a direct effect on ease of harvest and cleanliness of the produce.

Height of spinach plants at harvest (in)

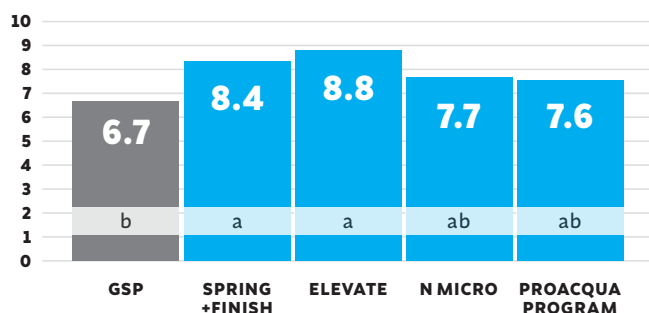


FIGURE 4. Height of spinach plants at harvest. $P < 0.10$, $SD \pm 0.84$ inches

**UP TO
31%
INCREASE IN HEIGHT**

VS. GSP

**28%
FEWER
YELLOW LEAVES**



Baby leaf yield ranged from 23,086 to 24,829 lb/ac (Fig 5). All ProAcqua treatments increased bunch yield numerically relative to the GSP, with the highest increase observed with application of Elevate (3,303 lb/ac), although this was not statistically significant (Fig. 5).

Marketable spinach yield (lb/ac)

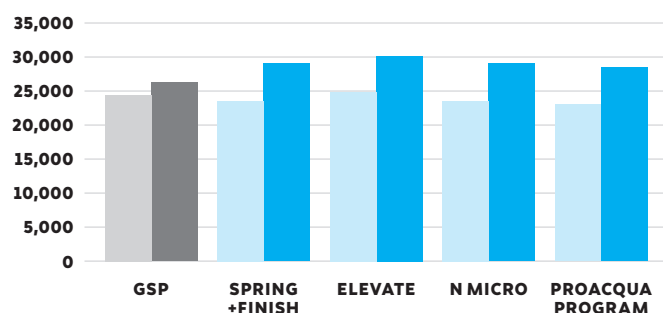


FIGURE 5. Baby leaf yield (SD±889 lb/ac) and bunch yield (SD±3307 lb/ac).
P=0.9000 and P=0.8432, respectively.

■ Bunch Yield
■ Baby Leaf Yield

SUMMARY:

This study demonstrated the potential benefit of ProAcqua products applied alone or in combinations on spinach production. Numerous benefits of applying ProAcqua products were observed in this study, including:

- Faster plant growth to close the canopy earlier in the season.
- Significantly more zinc, boron and manganese in tissue samples.
- As much as 31% increase in plant height at harvest and fewer yellow leaves.



For more information visit
proacquanutrients.com or compasscrops.com.