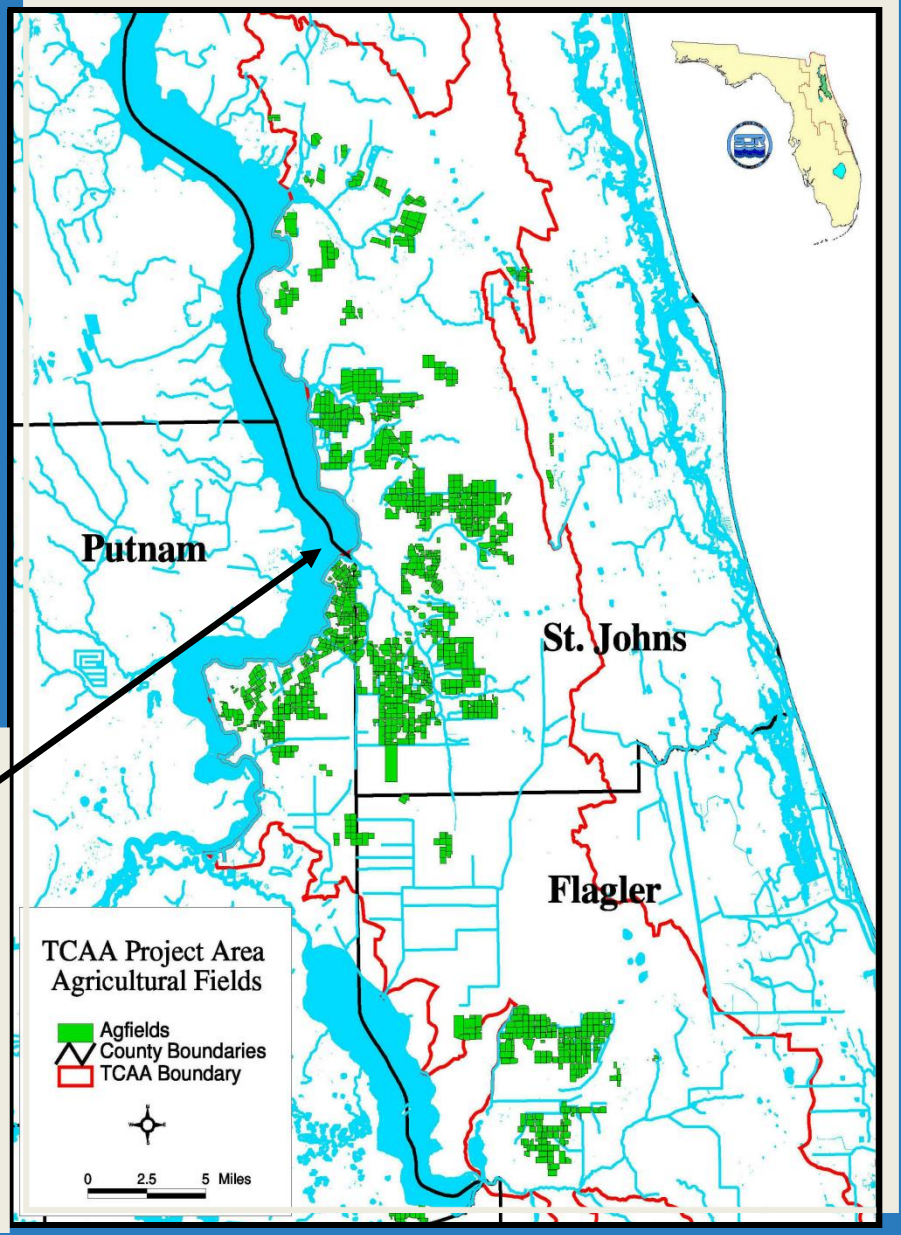
Tri-County Ag Nutrient Reduction Projects

Pam Livingston Way
City of Jacksonville
Environmental Symposium
August 15, 2014

- The Tri-County Agricultural Area is comprised of watersheds with a significant amount of agricultural land use, much of which is in close proximity to the St. Johns River.
- Approximately 31,000 acres is irrigated vegetable cropland; predominantly potato, cabbage and sod.

Hastings, Fla.

Federal Point




HASTINGS POTA ROWERS ASS'N
SUPERIOR
FARM PRODUCTS


FLORIDA...
NEW SPRING POTATOES
POTATOES

SJR at Cunningham Creek, NW St. Johns County

Sub-irrigation and furrow

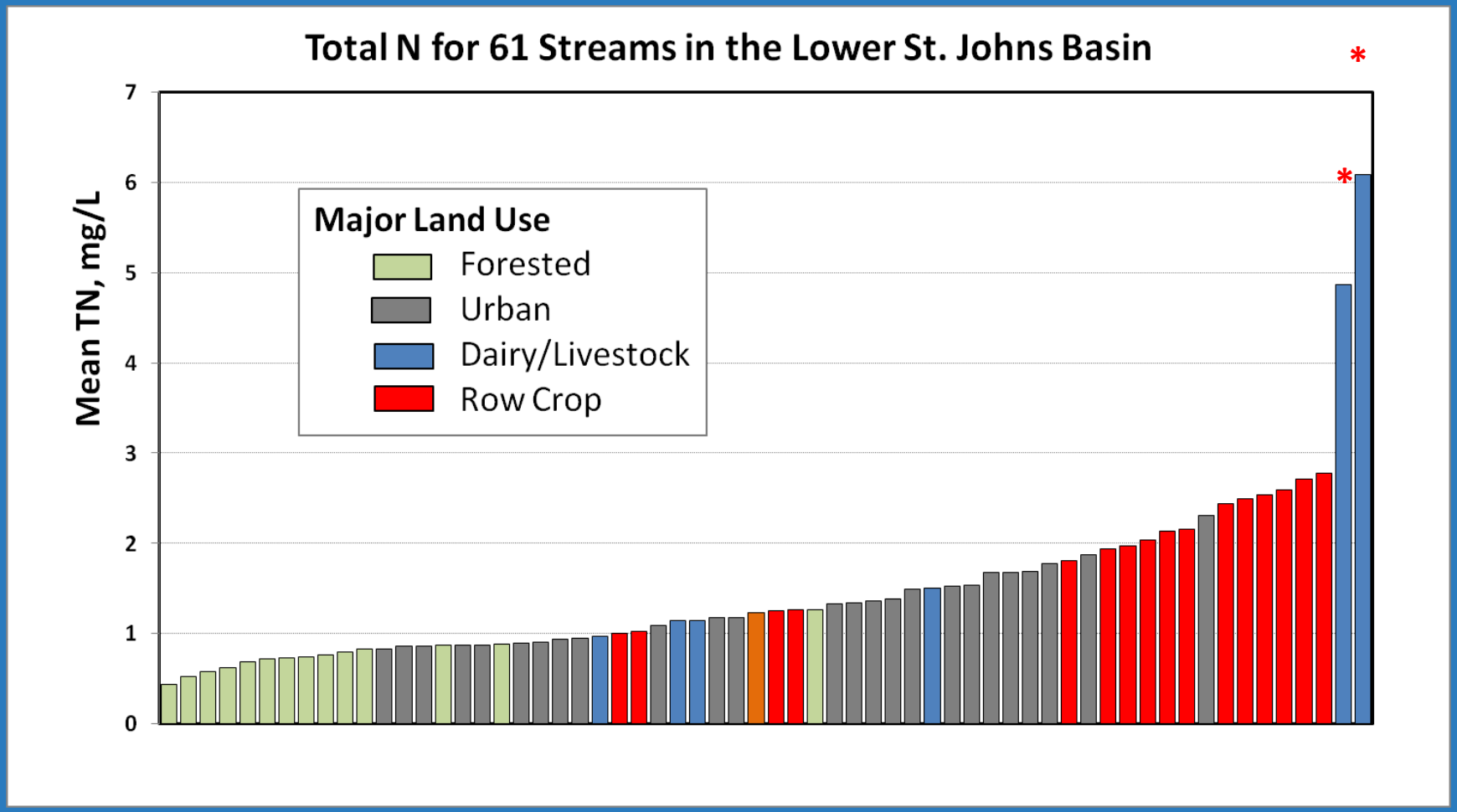
Flashboard riser

A three-year (1991-93) diagnostic project quantified and qualified nutrient loading from 10 representative area farms and results indicated

1) N and P loading is primarily associated with storm events.

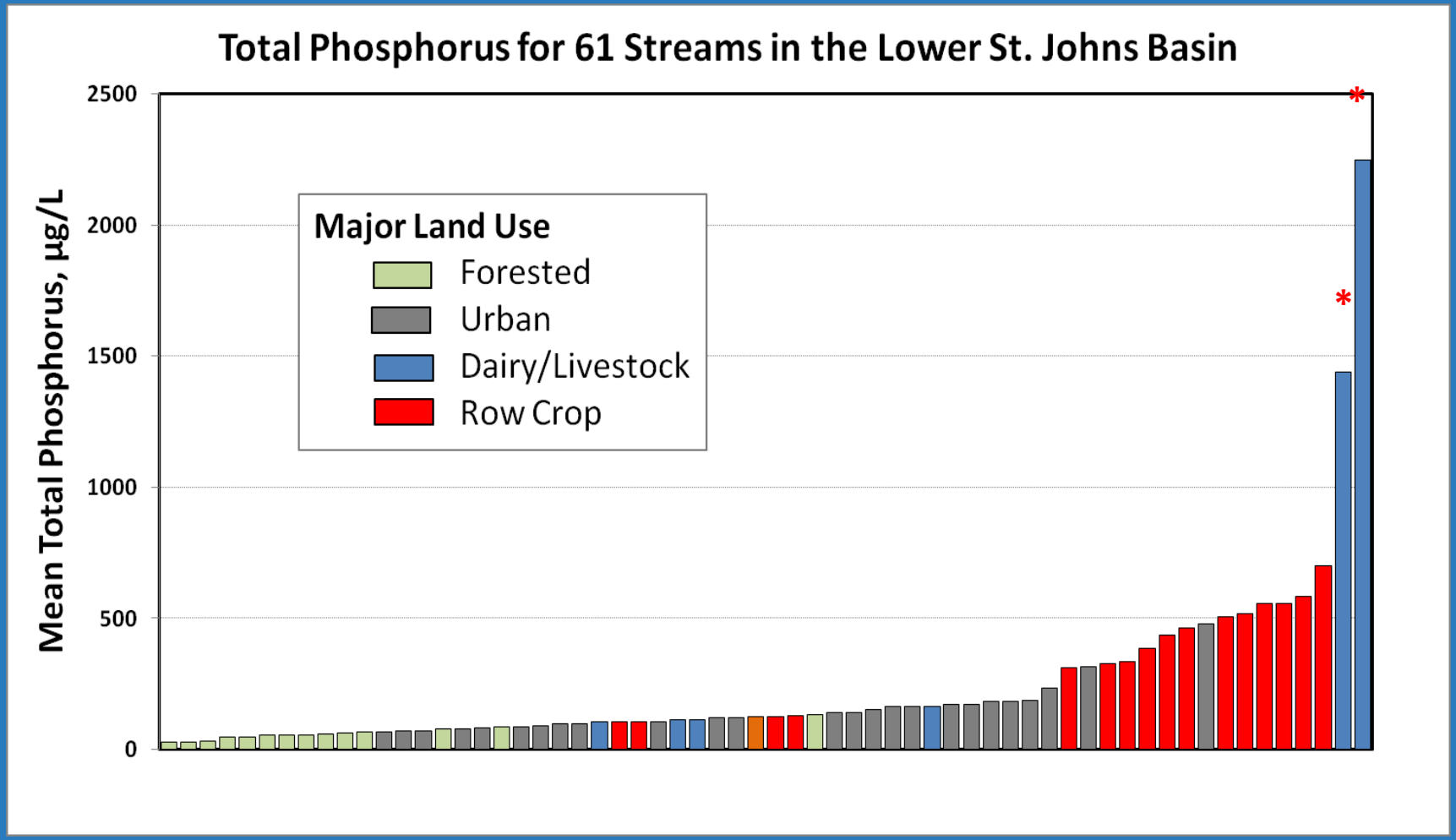
2) Nitrogen loading occurred mostly during the growing season, P loading had no seasonal trend.

Tributaries associated with agricultural areas have high concentrations of total nitrogen.



*Significant dairy operations have ceased in these watersheds

Tributaries associated with agricultural areas also have high concentrations of total phosphorus.

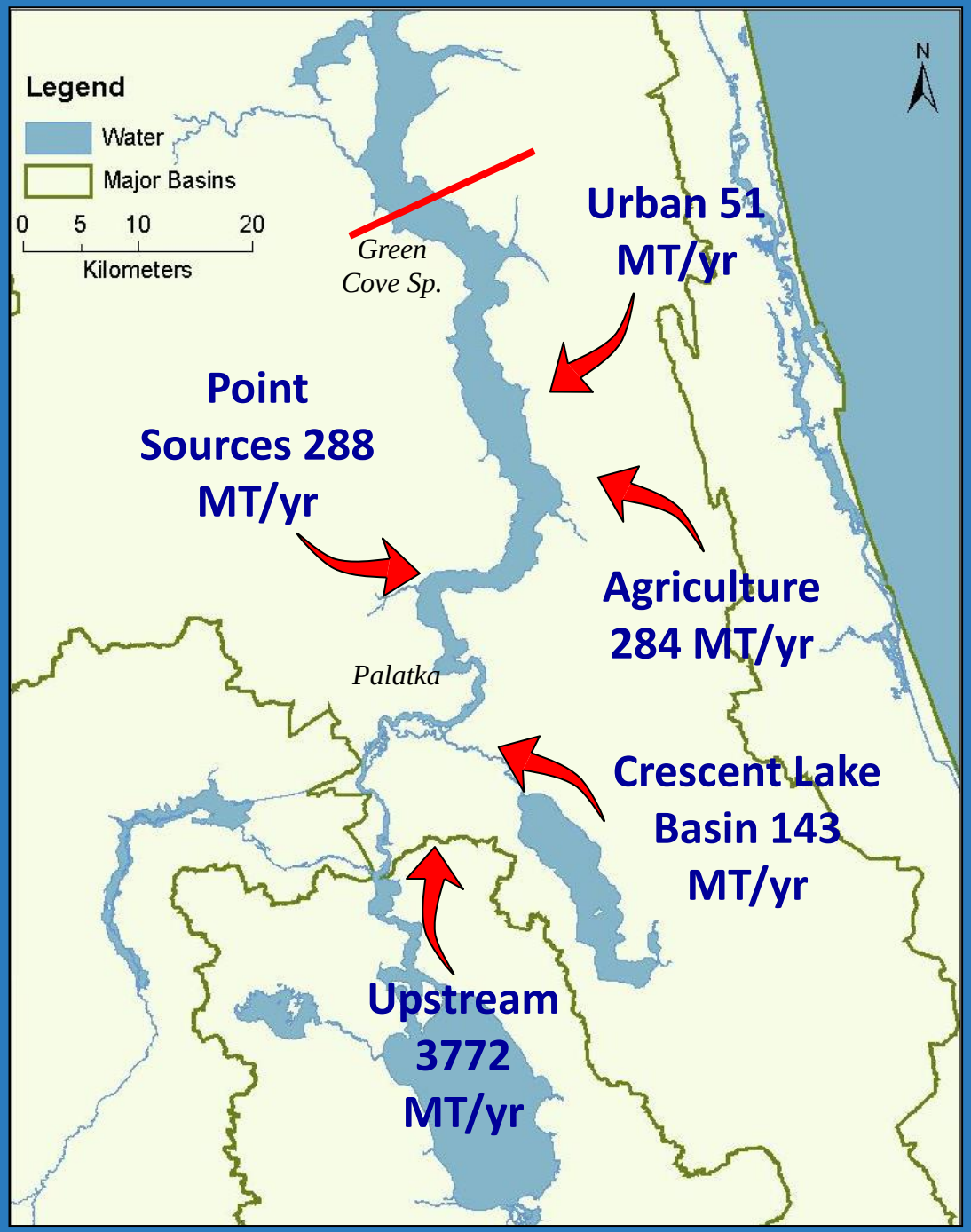


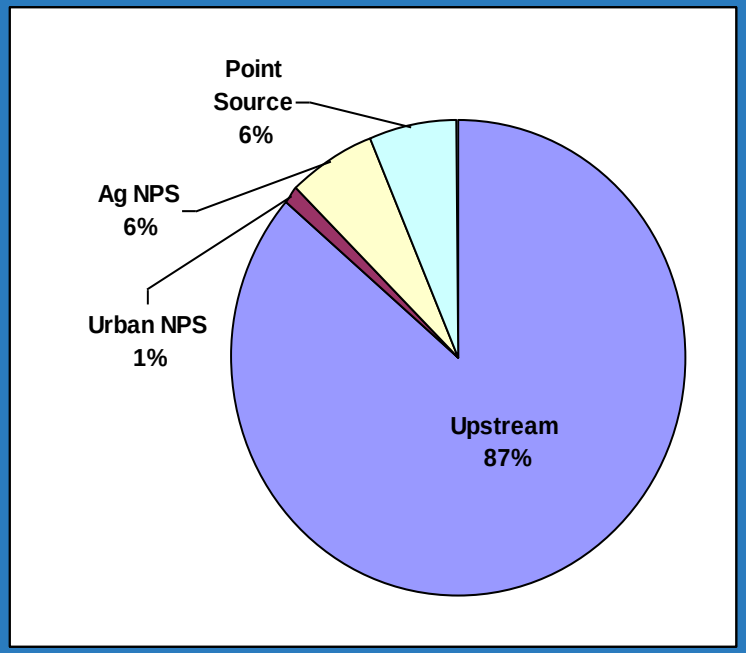
*Significant dairy operations have ceased and TP concentrations are trending downward

Freshwater Reach

Above Background Total Nitrogen Load Summary

1995-1999

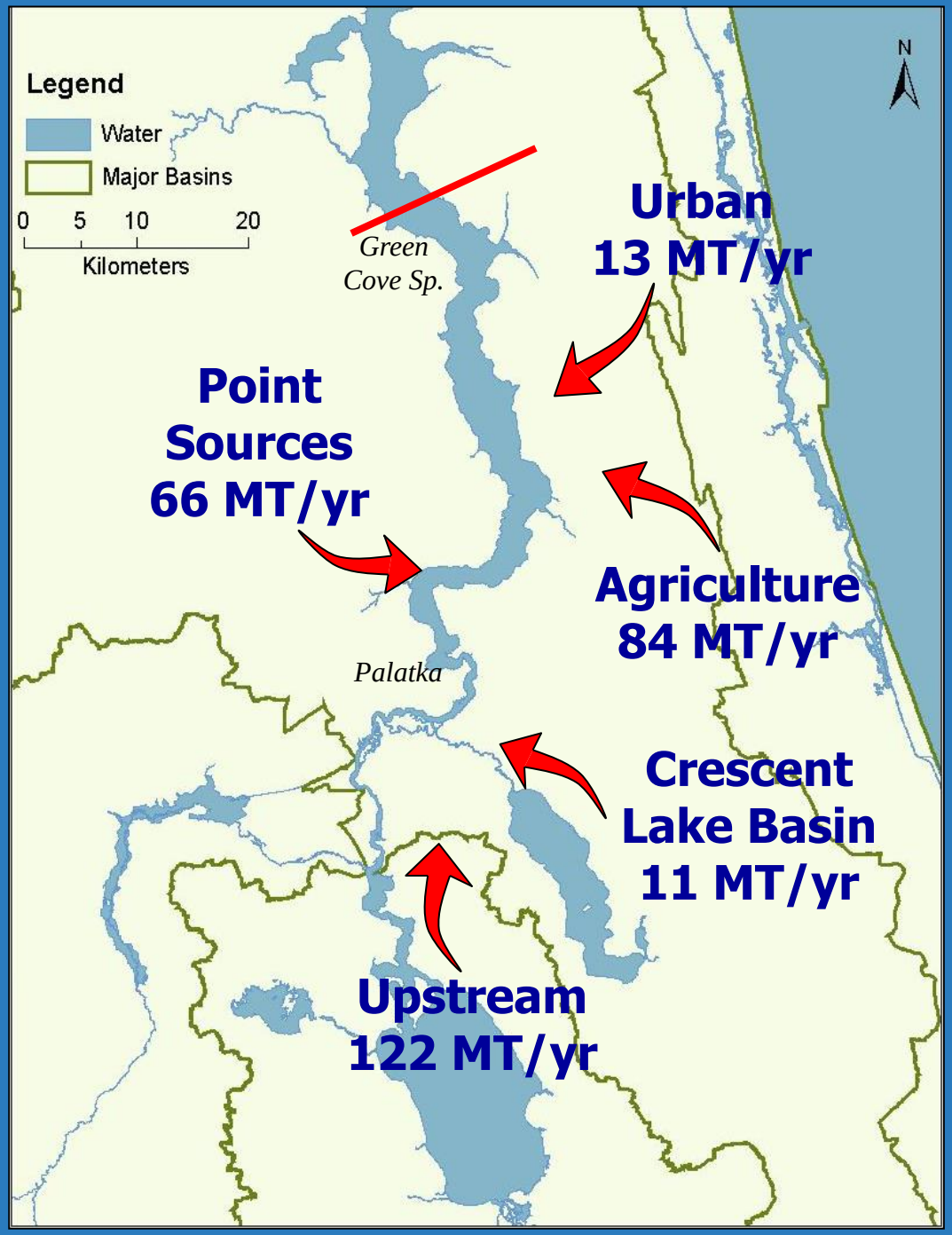


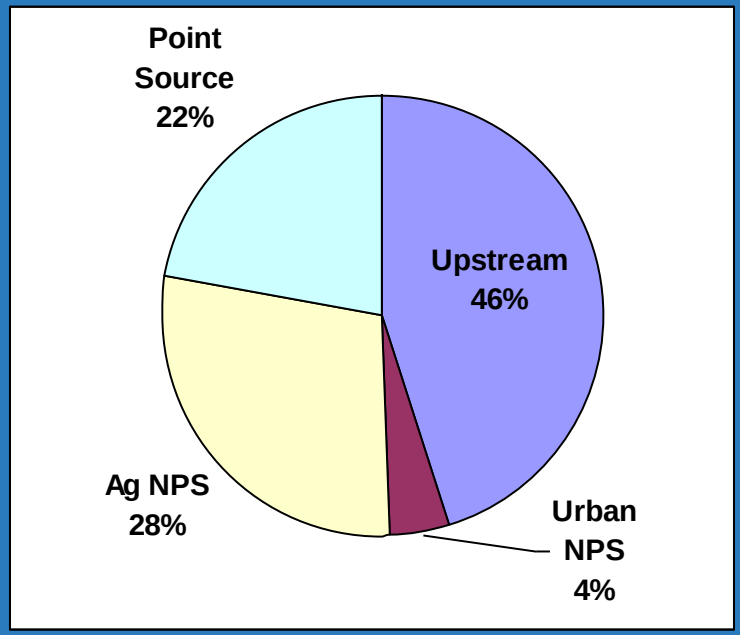


Freshwater Reach

Above Background Total Phosphorus Load Summary

1995-1999

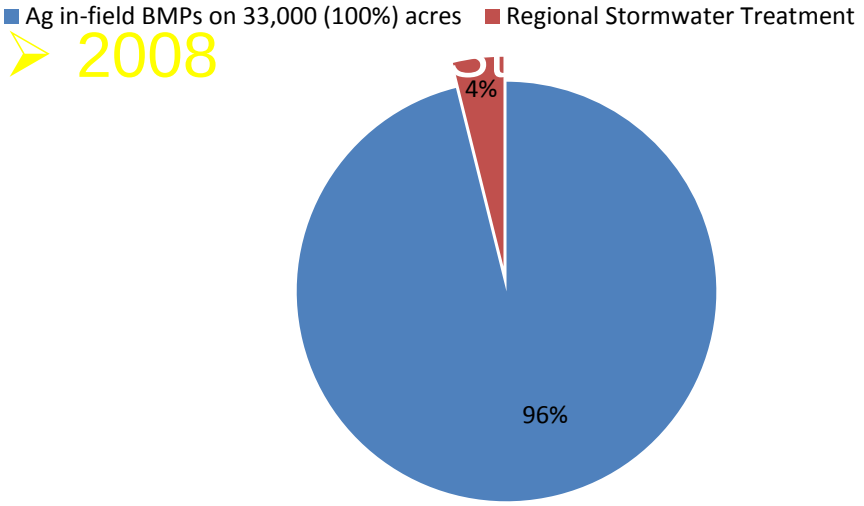




TCAA BMAP Projected Load Reduction Total Nitrogen (256,001 lbs/yr)

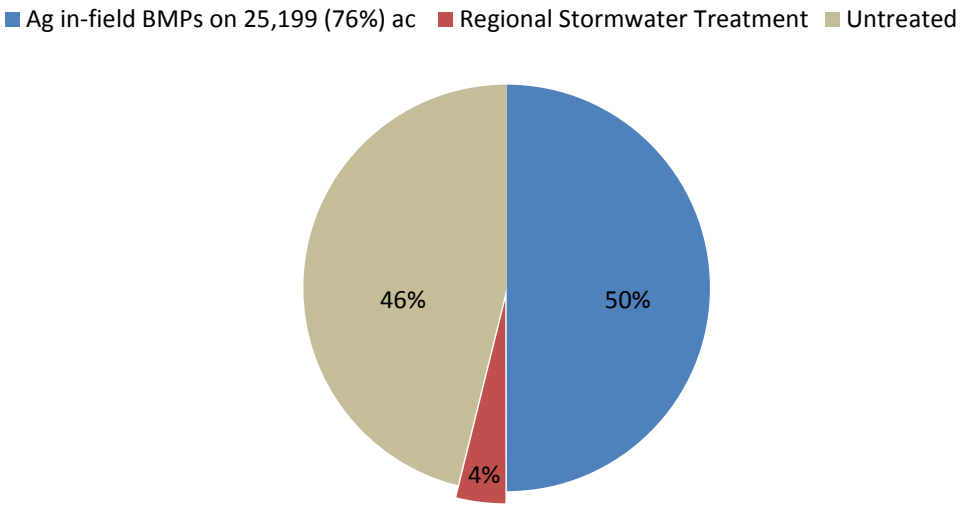
➢ 2004

➢ 2008



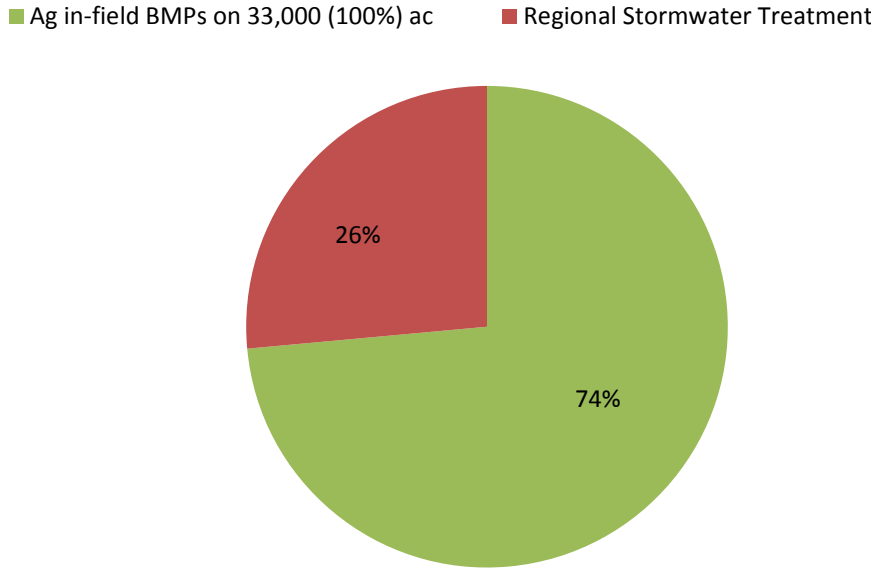
- Implementation of approved agricultural best management practices on 33,000 acres (100%) of ag crop lands.
- Implementation of 3 regional stormwater treatment facilities.

Current TCAA Project Load Reduction Total Nitrogen

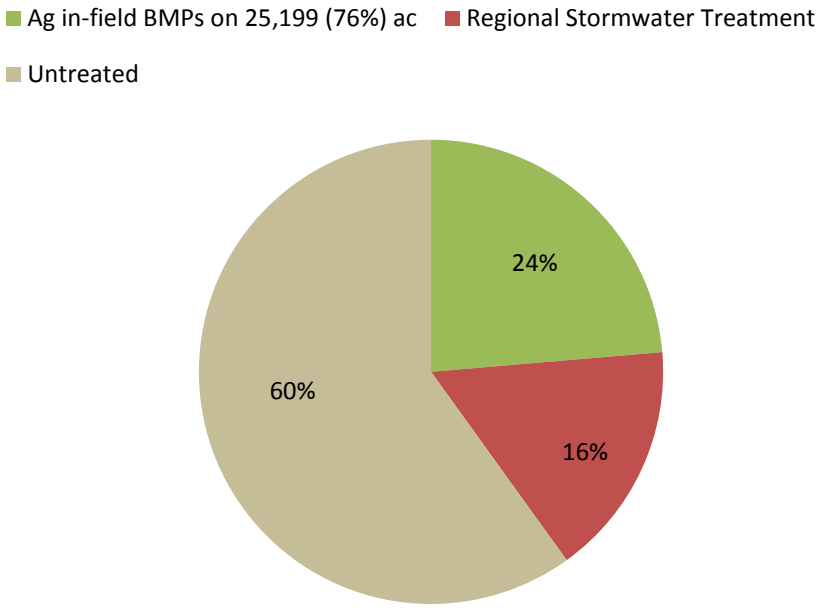


- Implementation of approved agricultural best management practices on 25,199 acres (76%) of ag crop land.
- Implementation of 2 regional stormwater treatment facilities.

TCAA BMAP Projected Load Reductio
Total Phosphorus (27,458 lbs/yr)



Current TCAA Project Load Reduction
Total Phosphorus



- Implementation of approved agricultural best management practices on 33,000 acres of ag crop lands (100%).
- Implementation of 4 regional stormwater treatment facilities.

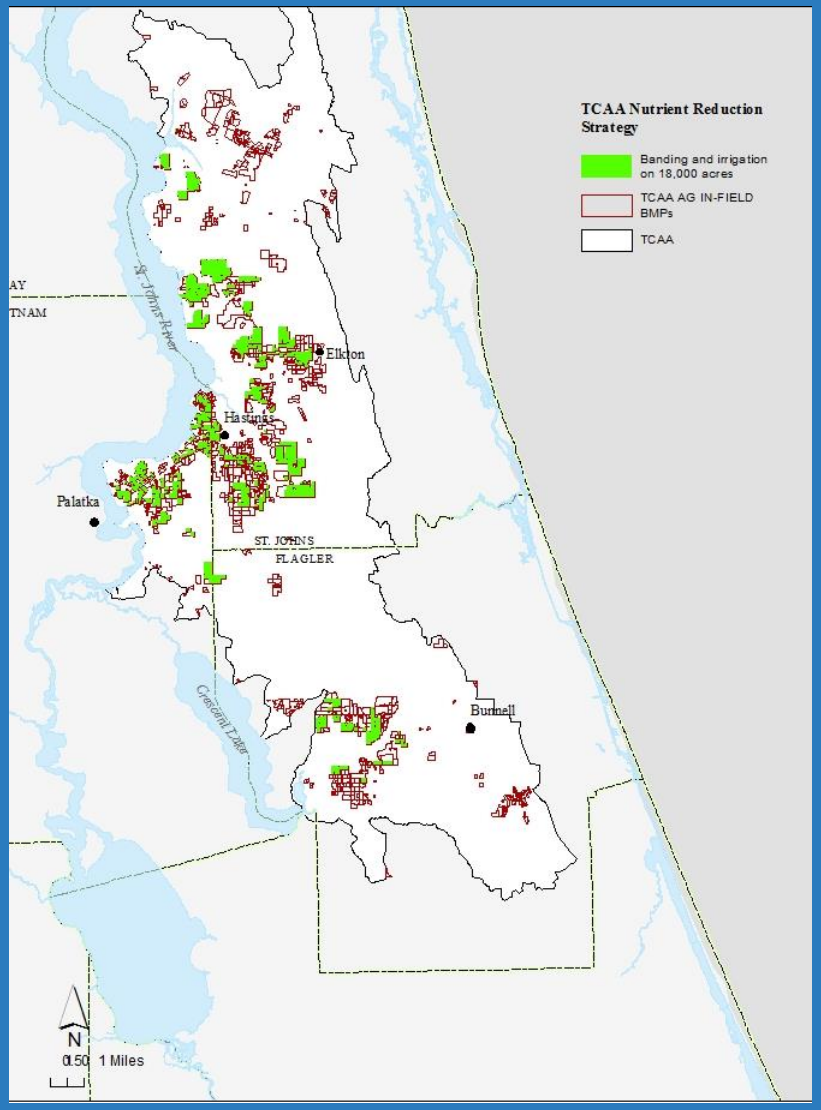
- Implementation of approved agricultural best management practices on 25,199 acres of ag crop lands (76%).
- Implementation of 2 regional stormwater treatment facilities.

TCAA Water Management Partnership

The objective of the TCAA-WMP is *to improve health of the lower St. Johns River through on-farm and regional water management projects and practices that reduce the movement of nutrients to the river, improve water conservation, and result in more efficient farm management*. The primary concern is the movement of phosphorus off of farm lands into the lower St. Johns River and its tributaries, although nitrogen movement is also a concern.

- TCAA growers (including the North Florida Growers Exchange)
- FDACS (coordinating entity)
- Florida Department of Environmental Protection (DEP)
- SJRWMD
- UF-IFAS
- St. Johns County
- Floridan Resource Conservation and Development Council
- Florida Fruit and Vegetable Association Florida
- Farm Bureau
- United States Department of Agriculture Natural Resources Conservation Service (USDA-NRCS)

Nutrient Reduction Strategy



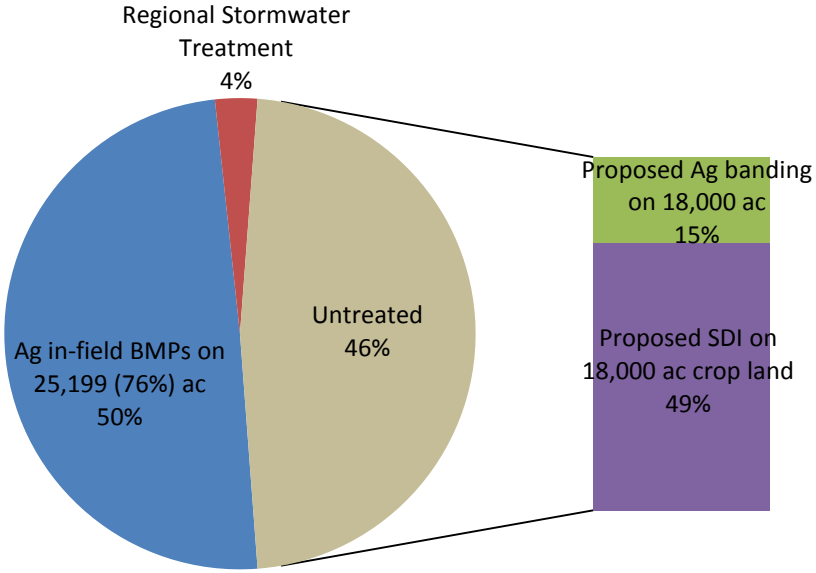
Estimated Reduction Goal

118,107 lbs/yr of TN

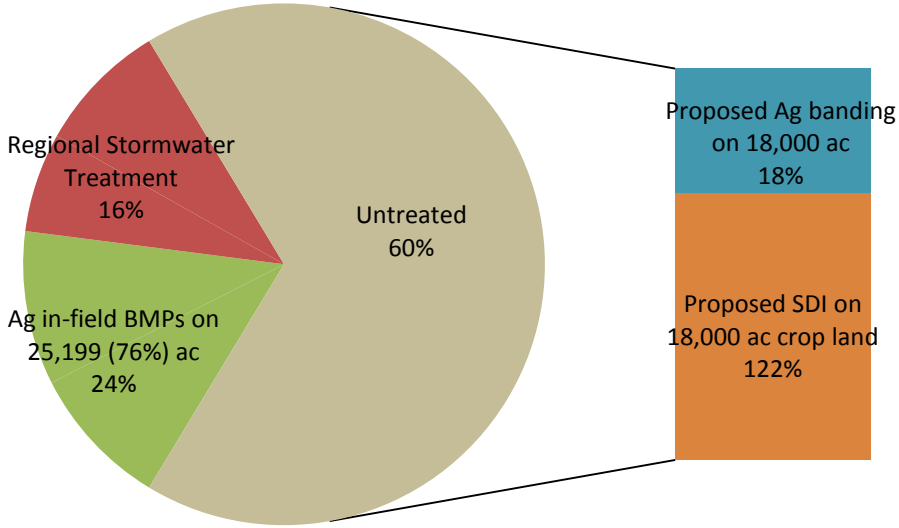
16,458 lbs/yr of TP

Implementation of improved irrigation management and nutrient management practices on 18,000 acres of intensive row cropland (i.e., potato and cabbage)

Treating the Remaining TN Load (118,107 lbs/yr)



Treating the Remaining TP Load (16,458 lbs/yr)



Funding Status as of June 16, 2014

SJRWMD — $2.25 million provided
$1.5 million for projects and fertilizer banding
$750,000 for banding only

USDA-NRCS — $741,000 provided; $450,000 committed so far

FDACS — $1.0 million provided

DEP — $2.3 million provided
$400,000 for monitoring
$1.9 million for projects and fertilizer banding

Water Management Partnership

2012–2013 Projects and Practices funded to date					
# of Projects	Project Type	Acres	Project Cost	Estimated lbs TP Removed	Estimated lbs TN Removed
5	Subsurface irrigation/drainage (Irridrain)	327	$612,904	*TBD	*TBD
3	Enhanced seepage (Subsurface drip)	85	$82,300	165	605
2	Overhead linear irrigation	317	$451,021	400	1,472
2	Center Pivot overhead irrigation	240	$605,798	319	1,170
12	Fertilizer banding equipment	8,093	$813,827	7,121	17,838
2014 New Projects (1st sign-up period)					
3	Enhanced seepage (Subsurface drip)	165	$261,020	316	1,166
1	Center Pivot overhead irrigation	142	$168,500	174	640
2	High Tunnel, drip w rainwater harvesting	6	$358,950	*TBD	*TBD
4	Fertilizer banding equipment	3,150	$214,362	2,771	6,943

TCAA-WMP projects to date estimated to address ~25% of total needed TN reductions and >50% of TP reductions.







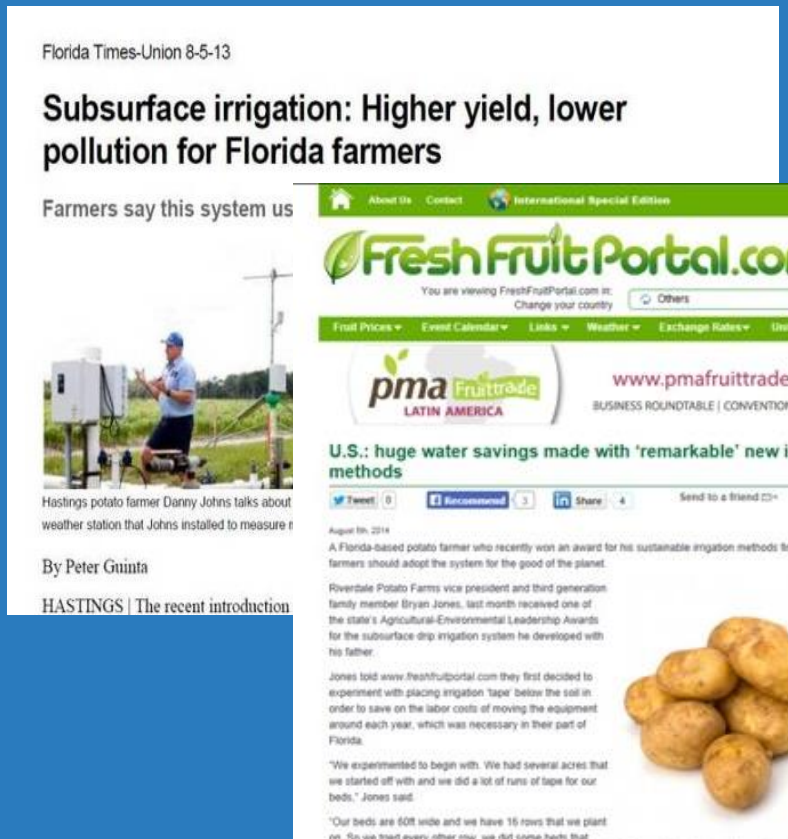




VALMAR
AIRFLO 7600

Conclusions

- N and P agricultural nonpoint source loading is primarily associated with storm events.
- Best management practices (BMPs) can reduce nutrient loading from edge of field.
- BMPs should be designed to improve nutrient/plant uptake efficiency; retain nutrients in the field and minimize runoff.



Florida Times-Union 8-5-13

Subsurface irrigation: Higher yield, lower pollution for Florida farmers

Farmers say this system us

Hastings potato farmer Danny Johns talks about
weather station that Johns installed to measure

By Peter Guinta

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U.S.: huge water savings made with 'remarkable' new irrigation methods

August 5th, 2014

A Florida-based potato farmer who recently won an award for his sustainable irrigation methods firmly believes all farmers should adopt the system for the good of the planet.

Riverdale Potato Farms vice president and third generation family member Bryan Jones, last month received one of the state's Agricultural-Environmental Leadership Awards for the subsurface drip irrigation system he developed with his father.

Jones told www.freshfruitportal.com they first decided to experiment with placing irrigation 'tape' below the soil in order to save on the labor costs of moving the equipment around each year, which was necessary in their part of Florida.

"We experimented to begin with. We had several acres that we started off with and we did a lot of runs of tape for our beds," Jones said.

"Our beds are 60ft wide and we have 16 rows that we plant


Thank
You.....
Questions?
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