

Advances in fertility and soil borne disease management in alliums

New England Fruit and Vegetable Conference
December 13, 2019

Crystal Stewart-Courtens

How much fertility is enough?

PLANT NUTRIENT RECOMMENDATION ACCORDING TO SOIL TEST RESULTS FOR GARLIC

GARLIC SOIL TEST RESULTS	NITROGEN (N) LBS PER ACRE	PHOSPHORUS (P) LBS P_2O_5 PER ACRE				POTASSIUM (K) LBS K_2O PER ACRE			
		VERY LOW	LOW	OPTIMUM	ABOVE OPTIMUM	VERY LOW	LOW	OPTIMUM	ABOVE OPTIMUM
Broadcast and Incorporate in fall	40	150	100	25-50	0	150	100	50	0
Sidedress in spring when shoots are 6 inches high	40	0	0	0	0	0	0	0	0
Sidedress 3-4 weeks later	40	0	0	0	0	0	0	0	0
TOTAL RECOMMENDED	120	150	100	25-50	0	150	100	50	0

PLANT NUTRIENT RECOMM	
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Deduct 10-15 lbs of N
per 1% of OM

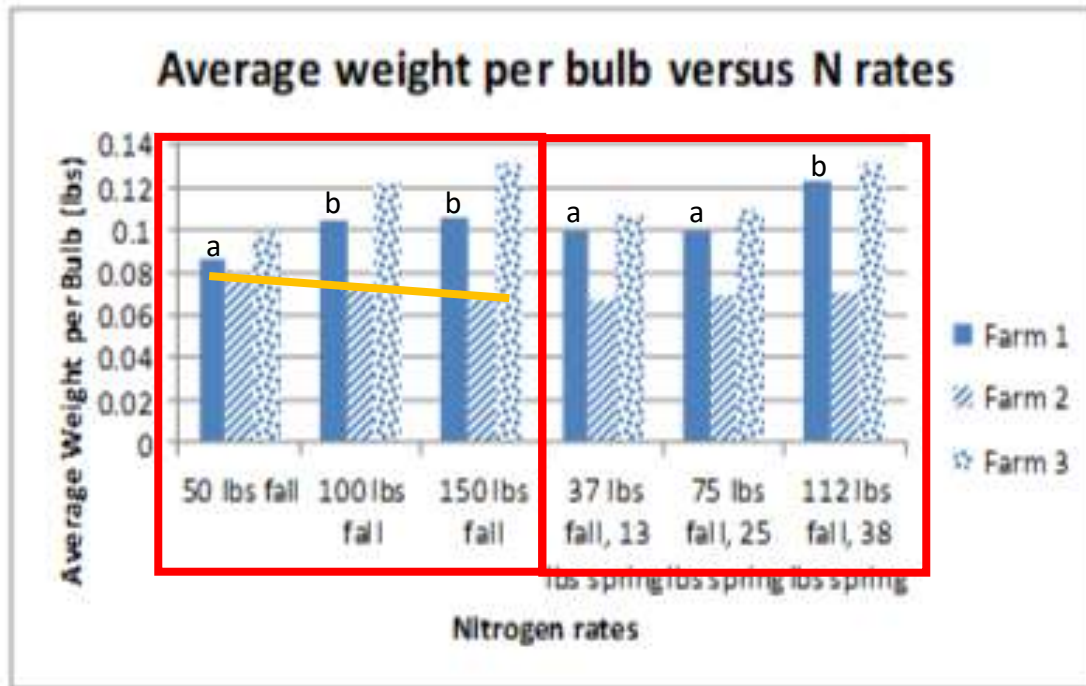
95 lbs N

Do we really have to
side-dress in the
spring?

*Not
necessarily*

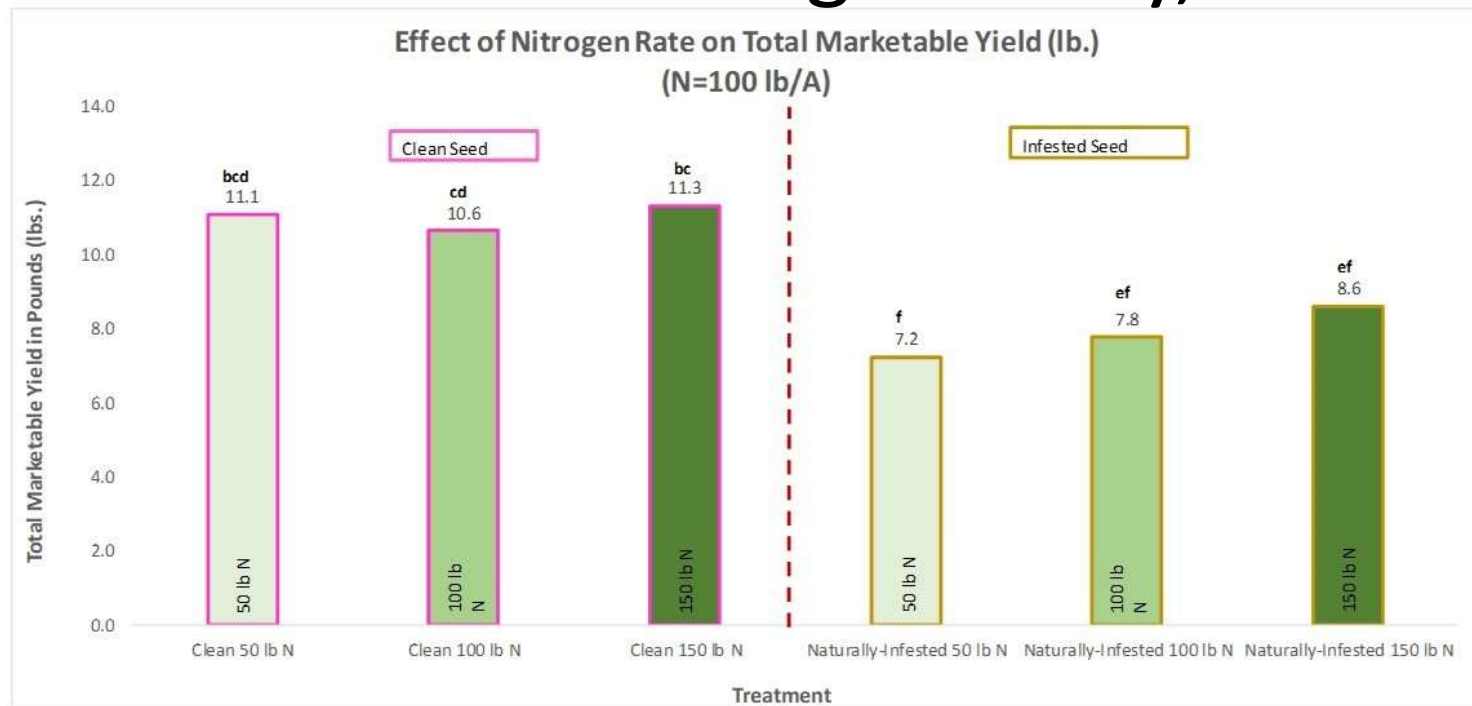
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Organic nitrogen study, 2011

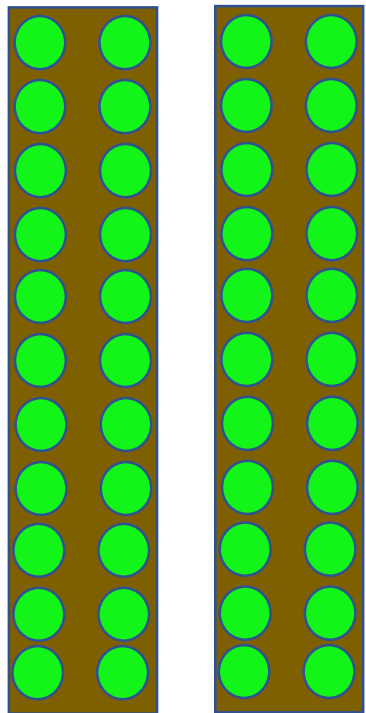


This work was funded through the support of Northeast SARE

Conventional nitrogen study, 2017

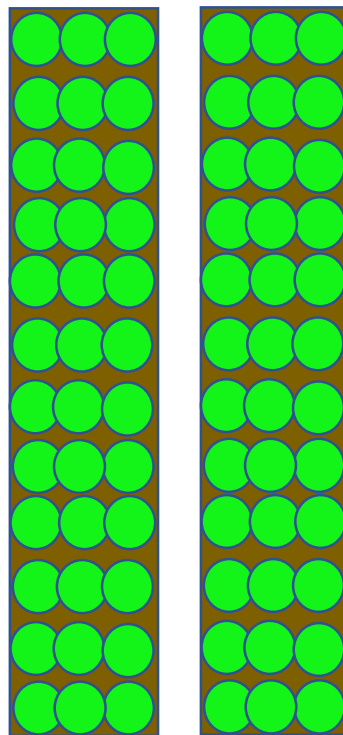


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15"
68"

Research plots:
15" between row
6" in-row
68" bed spacing
29,580 plants/A



12"
60"

One bed design:
12" between row
7" in-row
60" bed spacing
44,742 plants/A

1.5 times
more plants

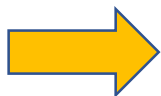
Suggested soluble N rates by density:

Plants per acre:	N rate per acre:
30,000	50 lbs
45,000	75 lbs
60,000	100 lbs

Apply nitrogen as soon as garlic begins to emerge in the spring

Organic N sources:

Organic trial
configuration



Plants per acre:	N rate per acre:
30,000	75 lbs
45,000	100 lbs
60,000	125 lbs

Impacts of Fusarium on the industry:

- Yield losses
- Down-grading of garlic
- Increased labor culling and grading
- Makes us cranky

The Many Looks of Fusarium







Damage by *D. dipsaci*

Images courtesy EA Kurtz APS Compendium of
Onion & Garlic Diseases

What can we do?

- Conventional fungicides have not been effective
- Disease severity varies tremendously from farm to farm and year to year

Research goals:

Better understand the disease itself

Understand what environments curb fusarium infestation

Understand what organic treatments, if any, curb fusarium infestation

Fusarium study

Cultural controls

- Two sites: Hudson Valley and WNY
- Raised beds, mulching, planting timing

Organic chemical/biological controls

- Two sites: LI and WNY
- Oxidate (seed and soil)
- Terra-clean and Terra-grow
- Effects of N levels on Fusarium severity















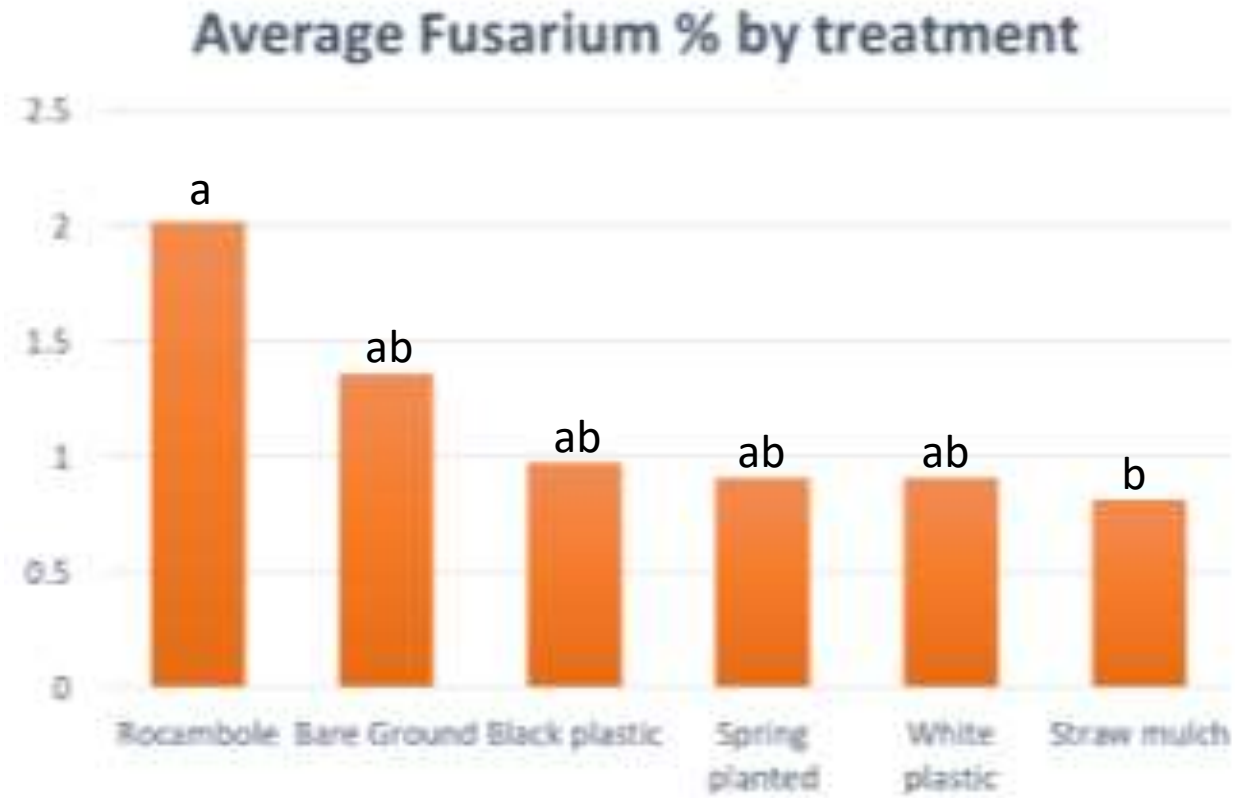














For more information...

Google CCE ENYCH to get to our website

Garlic post-harvest handling year two results

Crystal Stewart-Courtens, Extension Vegetable Specialist
Eastern New York Commercial Horticulture

Last Modified: April 20, 2019



Second year data from post-harvest studies. All work was funded by Northeast SARE.

[read details](#)

Presentations and Resources from 2019 Garlic School in Batavia

Crystal Stewart-Courtens, Extension Vegetable Specialist
Eastern New York Commercial Horticulture

Last Modified: April 5, 2019



Check out the presentations and resources from the [Cornell Vegetable Program's 2019 Garlic School](#) that was held March 20th, 2019 in Batavia, NY.

[read details](#)