Nutrient Management Choices

UMassAmherst
The Commonwealth's Flagship Campus

Nutrient Management Choices

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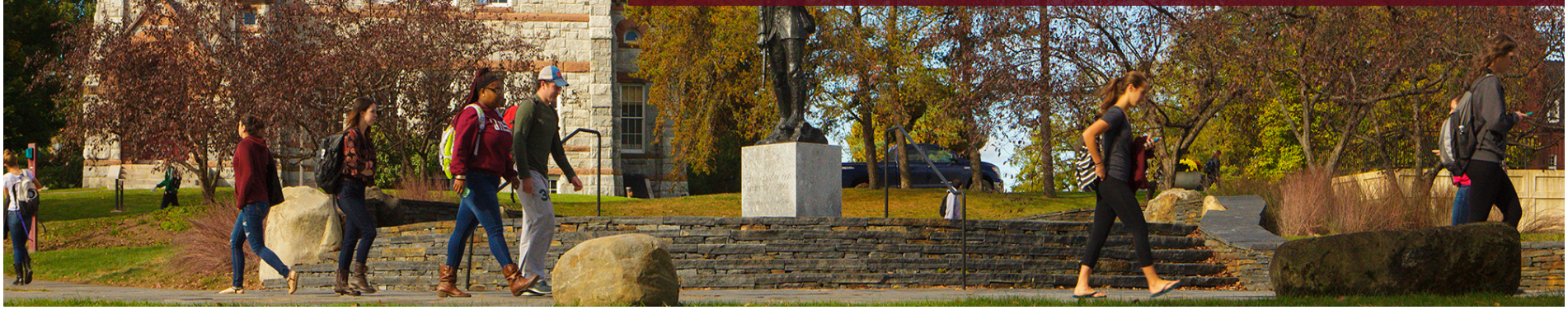

Chart Book Recommendations

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- These are the standard that MDAR will compare against
  - Recommendations should support crops as large as 500 bbl/acre
- Choices of how to deliver the nutrients
  - Industry standard has been fast-acting granulars
  - Some growers have incorporated some slow-acting granular
  - Controlled Release (granular) - some forms can be used in a single application
  - Recent uptick in use of liquids (designed to feed the roots)
    - Mineral-based
    - Organic (mainly fish)

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Comparing Common Choices

- Cranberry Station Bogs
  - We have been using 2 granular applications
    - 10.12.24 part slow SCU (~50%) at roughneck (100 lbs/a)
    - 18.8.18 soluble granular at 75% bloom (early set)
- 2016 Comparisons
  - Our program
  - All controlled release 16.7.16, applied in May
  - All liquid (Loveland products), 5 applications
  - Spring and post-set fish with 18.8.18 at bloom/set

Fish fertilizer plot work

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	Yield (bbl/a)			% Rot			ratio new:old growth		
	2014	2015	2016	2014	2015	2016	2014	2015	2016
T1 - std. gran.	**274**	**469**	**465**	**1.6**	**14.5**	**41.6**	0.34	**0.48**	0.39
T2 - low rate fish	209	**239**	**231**	0.5	**1**	**11.6**	0.25	**0.29**	0.29
T3 - higher rate fish	**204**	**256**	**257**	**0.2**	**1.4**	**17.1**	0.22	**0.3**	0.38
T4 - hybrid fish	245	403	**339**	0.9	**4**	**26.5**	0.28	**0.34**	0.33

		lbs/acre N		
	No. apps	2014	2015	2016
T1 - std. gran.	2	32.5	37	37
T2 - low rate fish	5	3	4.2	13.6
T3 - higher rate fish	4	4.6	4.6	14.6
T4 - hybrid fish	3/1	15.9	20.4	25.9

Key – black bold, largest
black not bold, not stat. diff.
red bold – stat. lower

2016 all got 100 lbs/a 10.12.24

Fish fertilizer compare at Rocky

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Location	Actual yield of section (bbl/a)	Yield from samples (bbl/a)	% Rot	ratio new:old growth
North	285	359	3.4	0.32
South	189	391	3.9	0.33

			lbs/acre		
Location	Fertilizer	No. apps	N rate	P rate	K rate
North	Std. granular	2	32.5	9.7	38.6
South	Fish/gran.	3	29	6.1	23

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What did we learn?

- Early and late fish may be able to replace spring granular
  - 5 gal per acre at roughneck and post set
  - 18-18-18 at late bloom/early set
  - Rate adjustment may be needed
- Fish *may* supress rot
  - Plot work in 2015 and 2016
  - Can't see a difference if pressure is low
    - Plots in 2014
    - Rocky in 2016

Howes fertilizer compare at SB

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Location	Yield (bbl/a)	% Rot	ratio new:old growth
Section 1	190	0.8	0.55
Checkerboard	191	0.7	0.58

			lbs/acre		
Location	Fertilizer	No. apps	N rate	P rate	K rate
Section 1	Liquid	5	31.2	4.4	17.3
Checkboard	CRF	1	32	6.2	26.6

Stevens fertilizer compare at SB

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Key – black bold, largest
red bold – stat. lower

Location	Yield (bbl/a)	% Rot	ratio new:old growth	Tissue %N
Section 3	**187**	4.4	**0.27**	**0.87**
Checkerboard	226	1.9	0.57	0.92
Section 4	**281**	4.1	0.42	0.99

			lbs/acre		
Location	Fertilizer	No. apps	N rate	P rate	K rate
Section 3	Liquid	5	31.2	4.4	17.3
Checkboard	CRF	1	32	6.2	26.6
Section 4	Std. granular	2	37	10.6	42.3

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What did we learn?

- When changing to CRF from fast-acting materials N rate should be reduced with caution
  - State Bog Stevens in 2016; 5 lb less N had lower yield
- Liquid programs can work as well as granular CRF
  - State Bog Howes in 2016
  - Loveland liquid vs. 16-7-16 CRF; yield was similar at similar N rate

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What did we learn?

- We still have more to learn regarding liquids
  - On Stevens at State Bog; liquid had reduced yield compared to CRF with similar N rate and much lower yield than granular applied at 5 lb/a more N
  - Upright growth was stunted

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Next steps for liquids?

- Use liquid like fish?
  - Supplement in spring and late summer with granular at set
- Gather more information from grower experiences
  - Essential for going all liquid